EMX-NM70

Intel® Celeron® Processor Mini ITX
Motherboard with Intel® NM70 Express Chipset

User's Manual

1st Ed – 18 July 2013

Part No. E2047NM7000R

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

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1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- Quick Installation Guide X 1
- Driver/Utility CD X 1
- Serial ATA Signal Cable X 1
- Serial ATA Power Cable X 1
- IO Shield
- COM Cable X 1
- Screw X 3
- Motherboard X 1

1.3 Document Amendment History

Revision	Date	By	Comment
1st	July 2013	Avalue	Initial Release

1.4 Manual Objectives

This manual describes in details Avalue Technology EMX-NM70 Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up EMX-NM70 series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

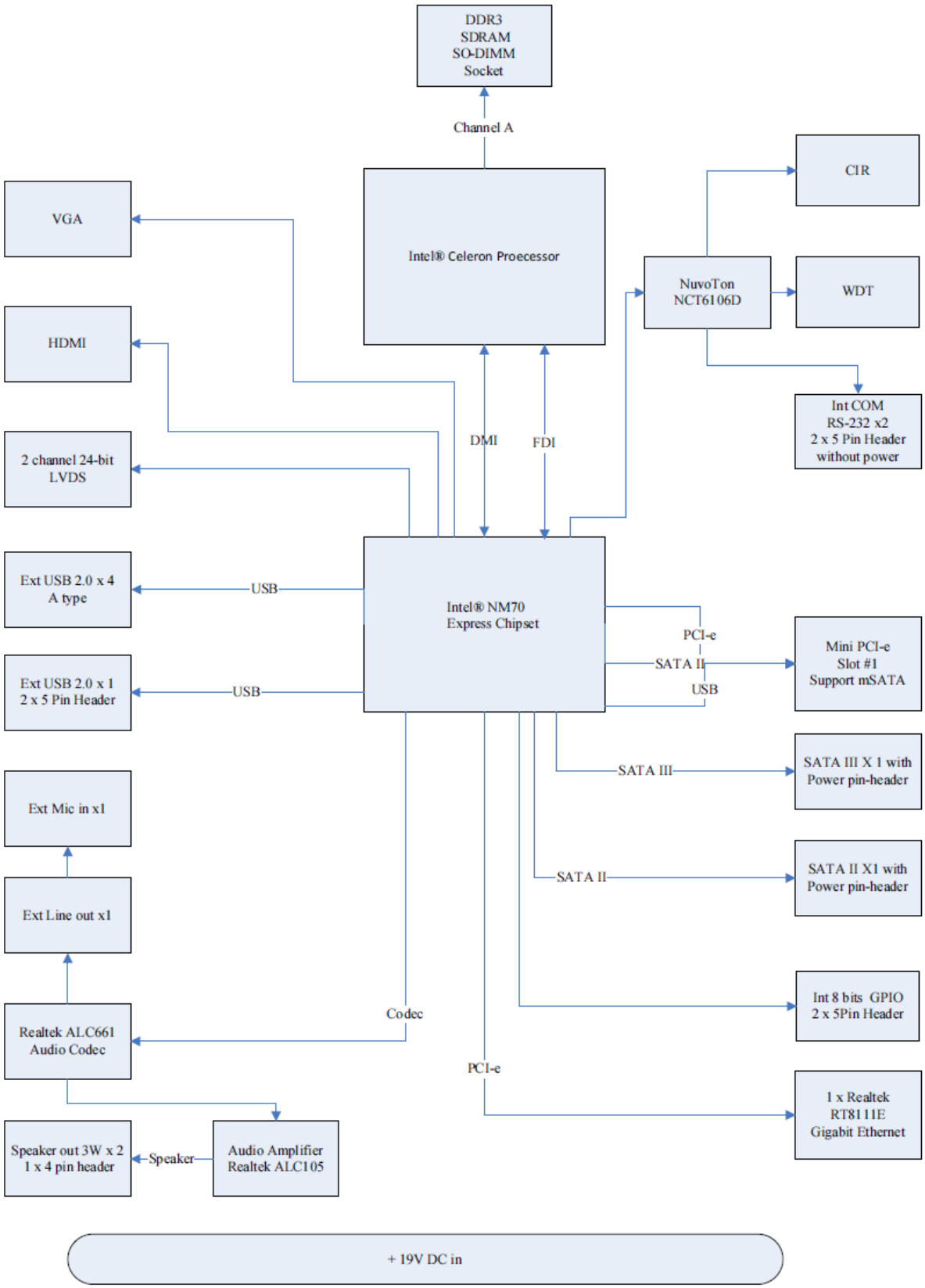
1.5 Specifications

System	
CPU	• Intel® Celeron® Processor 1037U (2M Cache,1.80 GHz) upgradable with Celeron level Processor
BIOS	• AMI uEFI BIOS, 64Mbit SPI Flash ROM
System Chipset	• Intel® NM70 Express Chipset
I/O Chip	• nuvoTon NCT6106D
System Memory	• 1 x 204-pin DDR3 1333 SODIMMs, up to 8GB
Watchdog Timer	• H/W Reset, 1sec. – 65535sec./min. • 1sec. or 1min. step
H/W Status Monitor	• CPU & system temperature monitoring • Voltages monitoring
Buzzer	• Buzzer onboard
Expansion	• 1 x Mini PCI-e (Mini PCI-e and mSATA SSD is Switchable Through Jumper)
I/O	
Rear Side External I/O Connector	• 1 x RJ-45 • 2 x dual deck USB 2.0 connectors • 1 x VGA • 1 x HDMI • 1 x Mic-In and 1 x Line-out • 1 x DC Jack
Internal I/O Connector	• Storage: - 1 x SATA III connector - 1 x SATA II connector - 2 x SATA power connectors • COM: - COM1~2: support RS-232 connector, Pin 9 without / +5V&+12V supported • GPIO: 8 bits • 1 x Mini PCI-e slot • 2 x 5 pin, pitch 2.54mm connector for USB 2.0 • 2 x 1 x 3 pin, pitch 1.00mm CPU fan connector with smart fan function supported • 1 x horizontal type battery connector • 1 x 2 x 5 pin, pitch 2.54mm connector for front panel • 1 x 2 x 2 pin ATX power connector for DC 19V input • 1 x 2 x 20 pin , pitch 1.00mm connector for LVDS • 1 x 5 pin , pitch 2.54mm connector for Inverter

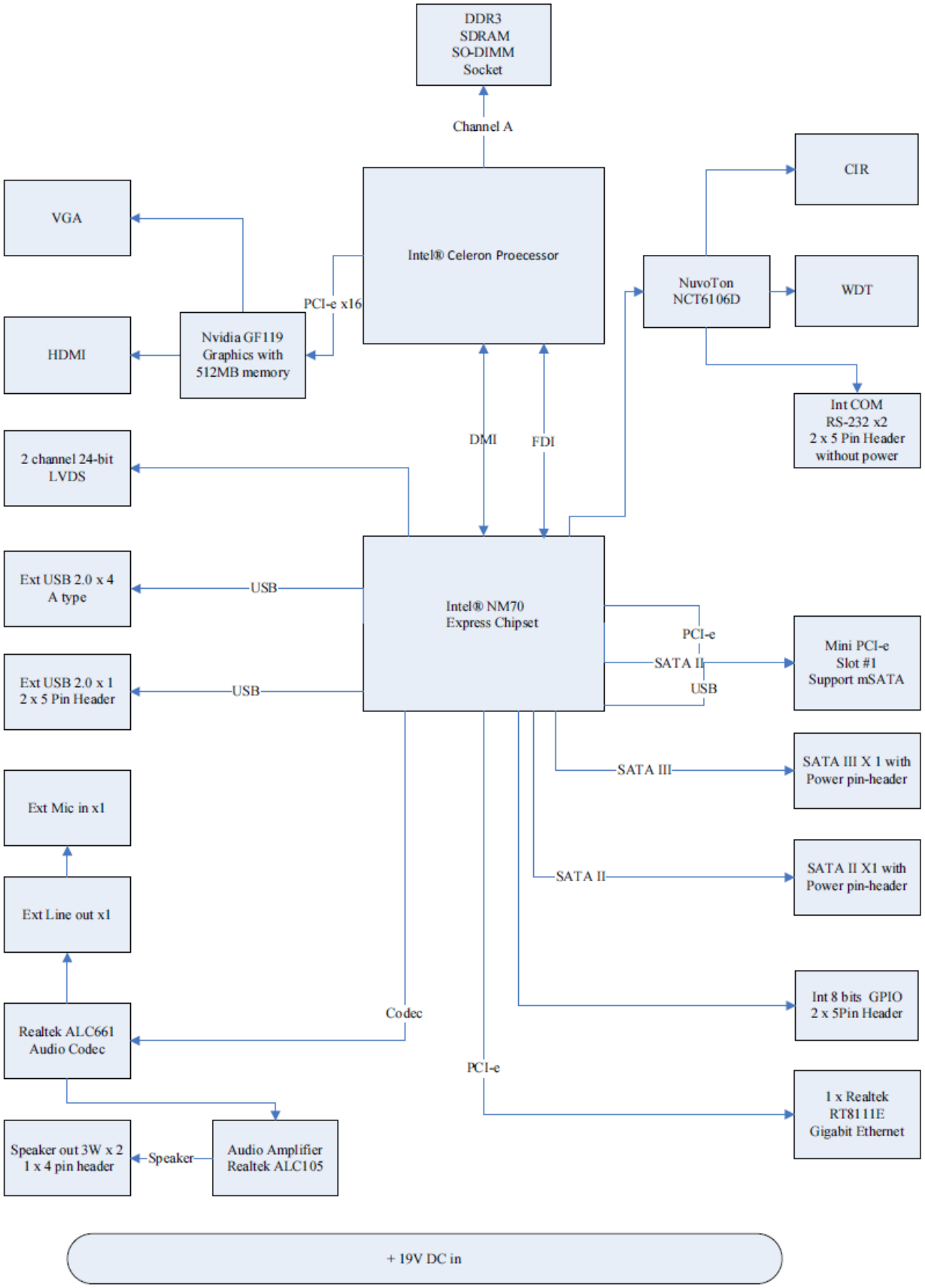
	• 1 x 4 pin , pitch 2.54mm connector for speaker • 1 x 3 pin , pitch 2.00mm connector for CIR
Display	
Chipset	• Intel NM70 integrated
Resolution	• HDMI:1920x1200 • VGA:2048x1536
LVDS	• 2CH 24bits LVDS 1920x1200
Display chip	• Nvidia GF119 Graphics with 512MB memory (optional)
Multi-Display	• With GPU : VGA + HDMI + LVDS (By Windows display setting) • Without GPU : VGA + LVDS, HDMI + LVDS
Audio	
Chipset	• Realtek ALC661 HD Audio Decoding Controller
Audio Interface	• Mic-In, Line-In
Audio Amplifier	• Realtek ALC105 Stereo Class-D 3W x 2
Ethernet	
Chipset	• 1 x Realtek RTL8111E PCI-Express Gigabit Ethernet
Ethernet Interface	• 10/100/1000 Gigabit Ethernet
Mechanical & Environmental	
Power Requirement	• DC in +19V
Power Type	• Single power +19V Power input / ATX mode
ACPI	• Single power ATX Support S0,S1, S3, S4, S5 • ACPI 3.0 Compliant
Operating Temp.	• 0°C ~60°C
Storage Temp.	• -40°C ~75°C
Operating Humidity	• 0%~90% relative humidity, non-condensing
Size (L x W)	• 6.7" x 6.7" (170mm x 170mm)
Weight	• 0.40 kg

1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of EMX-NM70.

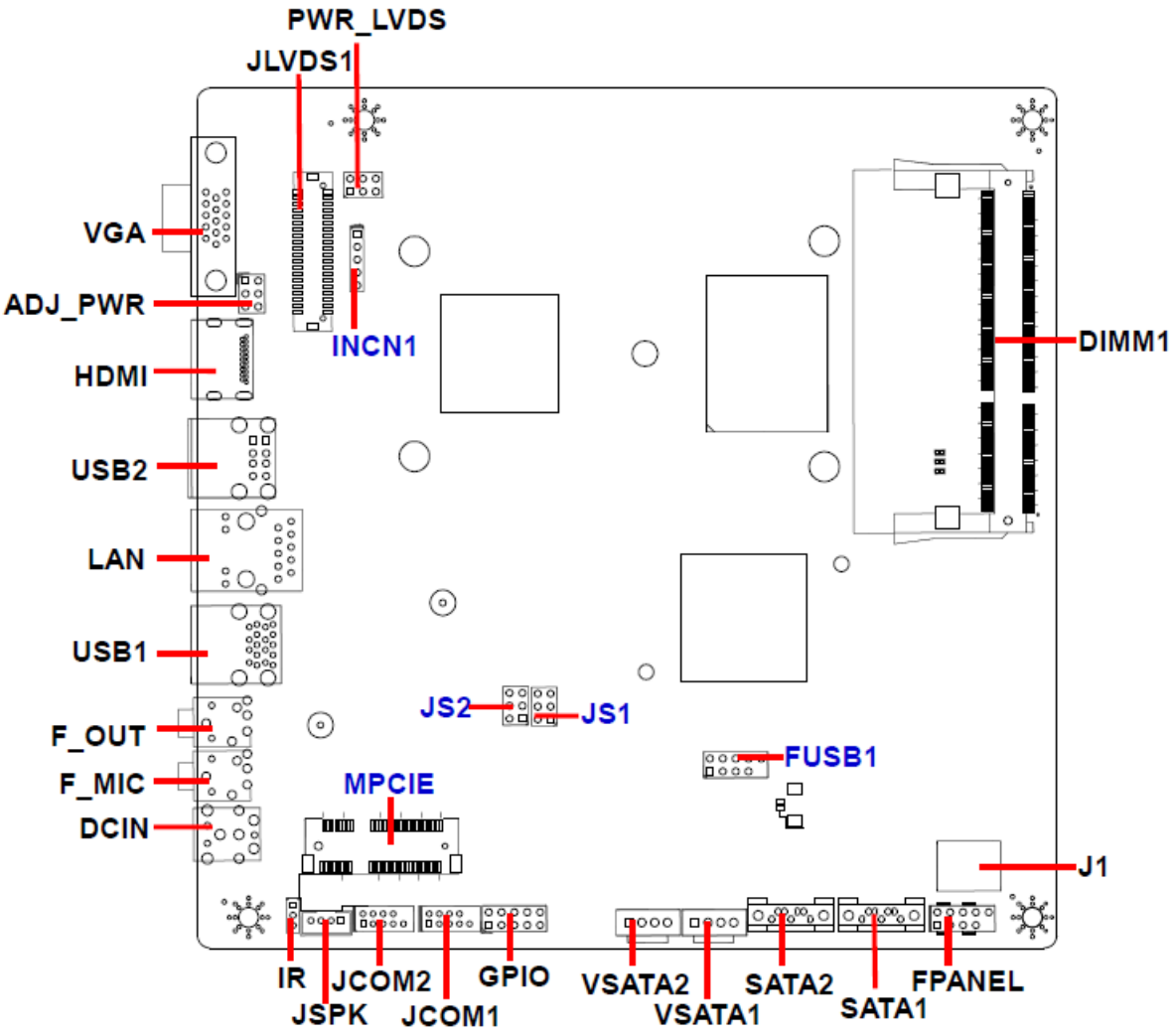


The following block diagram shows the architecture and main components of EMX-NM70-GPU.



2. Hardware Configuration

2.1 Product Overview



2.2 Installation Procedure

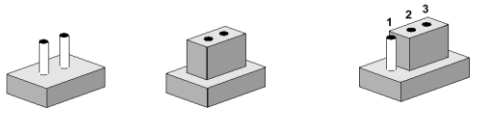
This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the DIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change BIOS settings to support flat panel.
4. Connect power supply to the board via the AC/DC Adapter.
5. Turn on the power.
6. Enter the BIOS setup by pressing the delete key during boot up. Use the "Save & Exit \ Restore Defaults" feature.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

2.3 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function	Note
PWR_LVDS	Jumper for LVDS power	2 x 3 header, pitch 2.54 mm
ADJ_PWR	Jumper for inverter power	3 x 2 header, pitch 2.54 mm
JS1/2	Msata/Mini PCIe function Jumper	3 x 2 header, pitch 2.54 mm

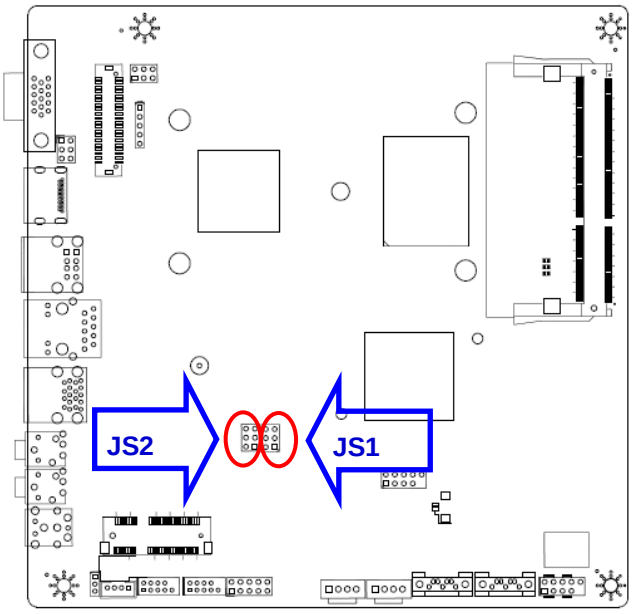
Connectors

Label	Function	Note
F_MIC	Mic-in audio jack	3.5mm phone jack
F_OUT	Line-out audio jack	3.5mm phone jack
USB1/2	USB connector1/2	Stack USB 2.00 connector
LAN	RJ-45 Ethernet connector	RJ45 w/ indicator connector
DCIN	DC power-in connector	

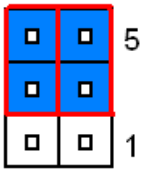
CIR	CIR connector	1 x 3 header, pitch 2.00 mm
FPANEL	Front Panel Switches	2 x 5 header, pitch 2.54 mm
JLVDS1	LVDS connector	2 x 20 wafer, pitch 1.00 mm
JSPK	Speaker Headers	1 x 4 wafer, pitch 2.00 mm
HDMI	HDMI connector	
INCN1	LCD Inverter connector	5 x 1 header, pitch 2.54 mm
SATA1/2	Serial ATA connector 1/2	SATA 7P connector
VSATA1/2	SATA Power connector 1/2	1 x 4 wafer, pitch 2.50 mm
JCOM1/2	Serial port 1/2 connector	2 x 5 header, pitch 2.00 mm
GPIO	General Purpose I/O	2 x 5 header, pitch 2.54 mm
FUSB1	USB Connector 1 – USB2.0	2 x 5 header, pitch 2.54 mm
VGA	VGA connector	D-SUB 15pin
MPCIE	Mini-PCIe	Half size
DIMM1	DDR3 SODIMM connector1	SO-DIMM 204Pin
J1	Power connector	2 x 2 wafer, pitch 4.20 mm

2.4 Setting Jumpers & Connectors

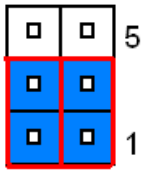
2.4.1 mSATA/Mini PCIe function Jumper (JS1/JS2)



MINIPCIE*



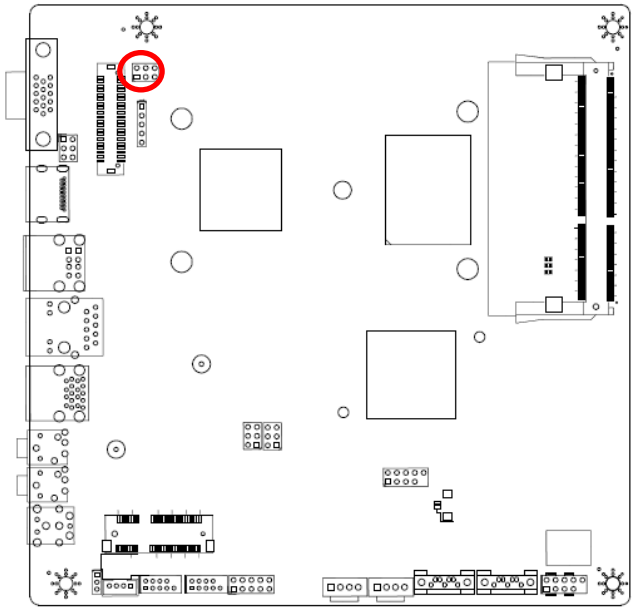
M-SATA



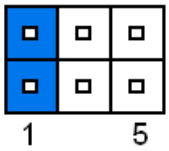
*** Default**

Pin	Pin	Signal
1-3	2-4	M-SATA
3-5	4-6	MINIPCIE

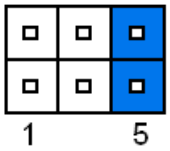
2.4.2 Jumper for LVDS power (PWR_LVDS)



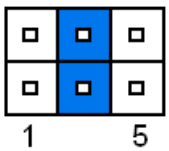
+3.3V*



+12V



+5V

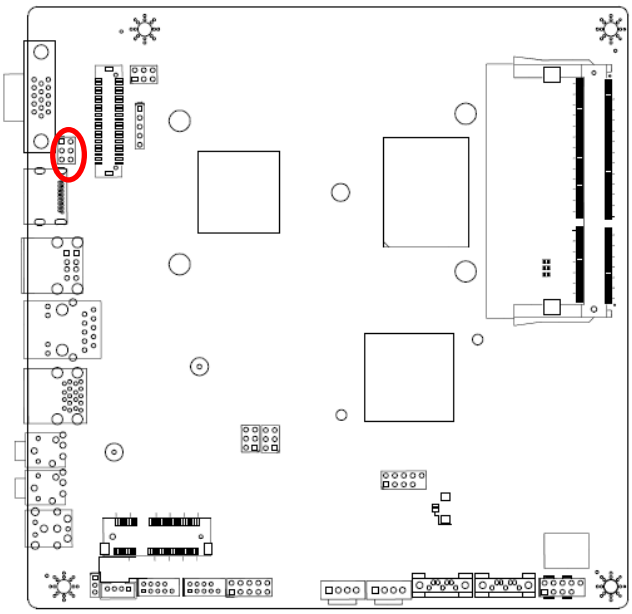


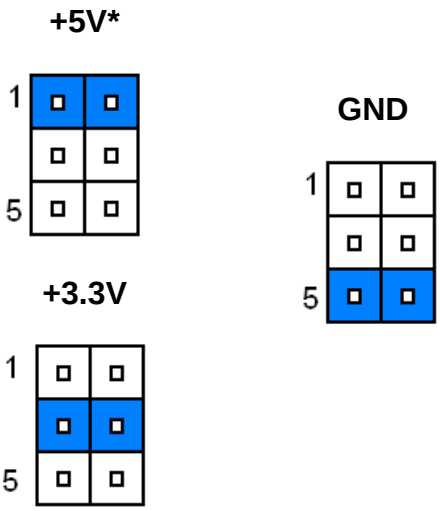
*** Default**

Note: This jumper is working for LVDS power.

PIN	Signal	Max current
1-2	+3.3V	1A
3-4	+5V	1A
5-6	+12V	1A

2.4.3 Jumper for inverter power (ADJ_PWR)



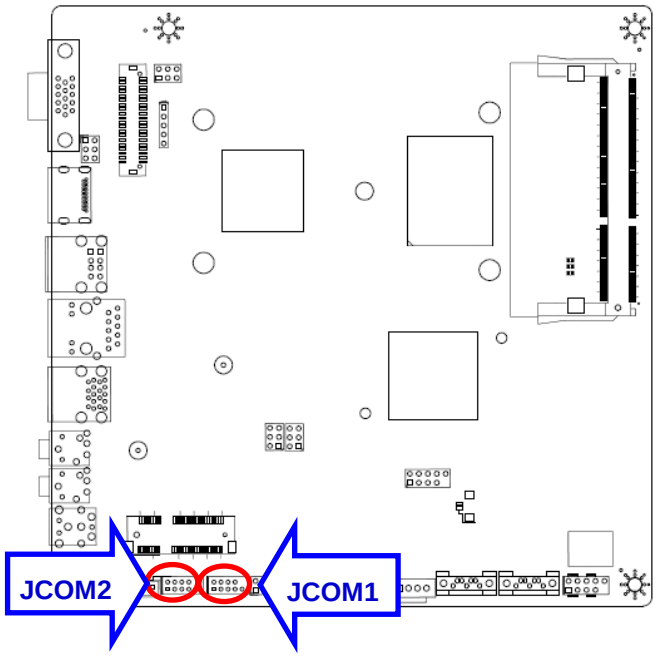


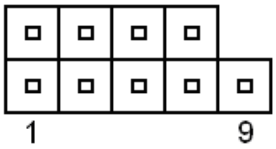
*** Default**

Note: This jumper is working for inverter power.

PIN	Signal	Max current
1-2	+5V	1A
3-4	+3.3V	1A
5-6	GND	

2.4.4 Serial port 1/2 connector (JCOM1/2)

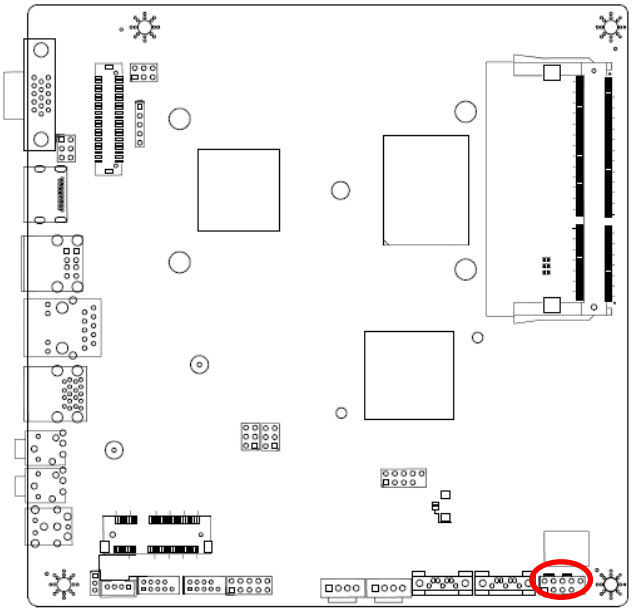


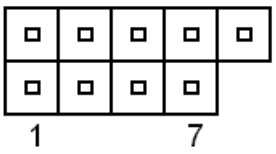


Signal	PIN	PIN	Signal
DCD	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9		

Note: Com 1/2 Pin9 without power.

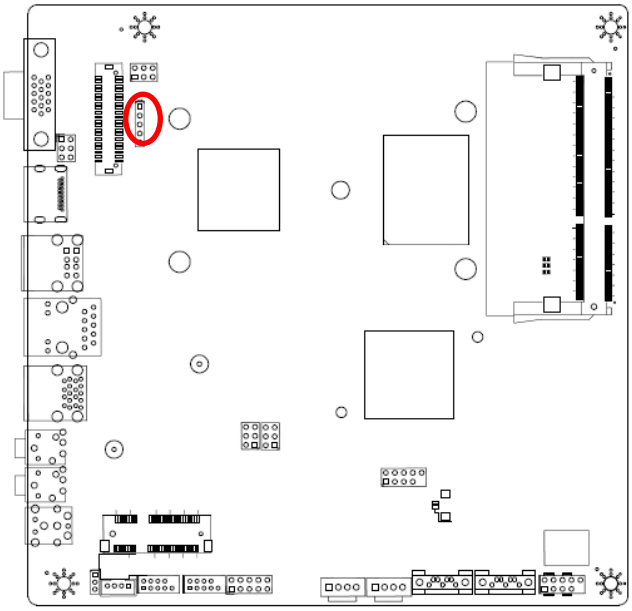
2.4.5 Front Panel Switches (FPANEL)

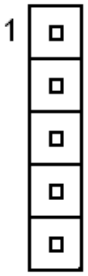




Signal	PIN	PIN	Signal
HD_LED+	1	2	PWR_LED+
HD_LED-	3	4	PWR_LED-
RESET	5	6	PWR_ON
RESET	7	8	PWR_ON
		10	GND

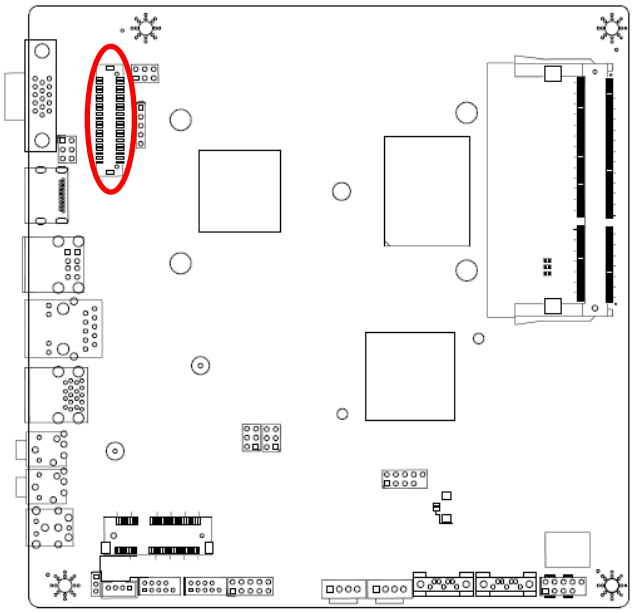
2.4.6 LCD Inverter connector (INCN1)

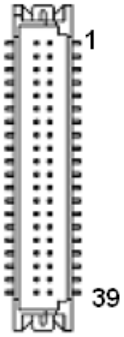




PIN	Signal	Max current
1	+12V	1A
2	GND	
3	BLK_ON	
4	Brightness	
5	+5V	1A

2.4.7 LVDS connector (JLVDS1)

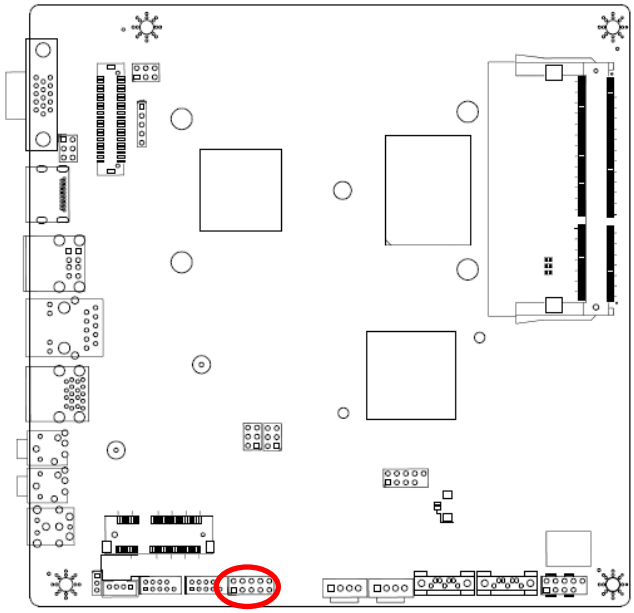


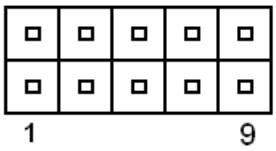


Note: Mapping connector DF13-40DS-1.25C (1.0mm).

Signal	PIN	PIN	Signal
VDDPAEA	2	1	VDDPAEA
GND	4	3	GND
VDDPAEA	6	5	VDDPAEA
LVDS1_N0	8	7	LVDS0_N0
LVDS1_P0	10	9	LVDS0_P0
GND	12	11	GND
LVDS1_N1	14	13	LVDS0_N1
LVDS1_P1	16	15	LVDS0_P1
GND	18	17	GND
LVDS1_N2	20	19	LVDS0_N2
LVDS1_P2	22	21	LVDS0_P2
GND	24	23	NC
LVDS1_CLKN	26	25	LVDS0_CLKN
LVDS1_CLKP	28	27	LVDS0_CLKP
GND	30	29	GND
LVDS_DDCPDATA	32	31	LVDS_DDCPCLK
GND	34	33	GND
LVDS1_N3	36	35	LVDS0_N3
LVDS1_P3	38	37	LVDS0_P3
LVDS_VCON	40	39	NC

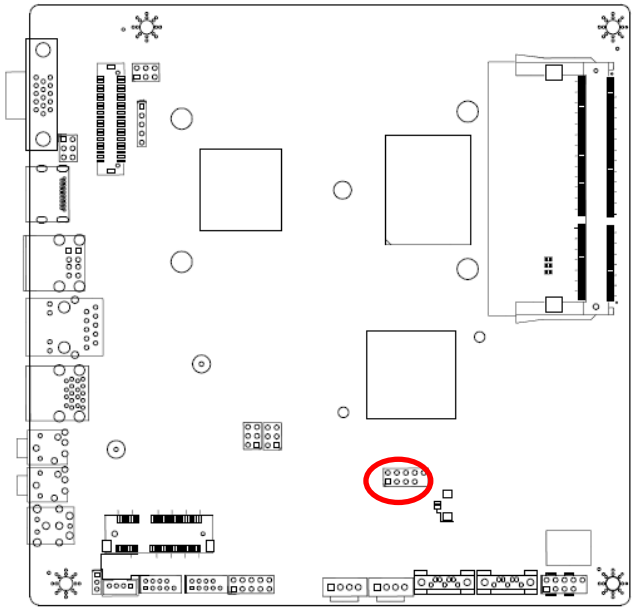
2.4.8 General Purpose I/O (GPIO1)

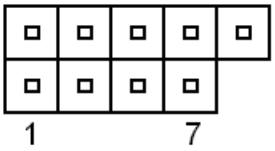




Signal	PIN	PIN	Signal
+3.3V	1	2	GND
GPIO0	3	4	GPIO68
GPIO1	5	6	GPIO69
GPIO6	7	8	GPIO70
GPIO16	9	10	GPIO71

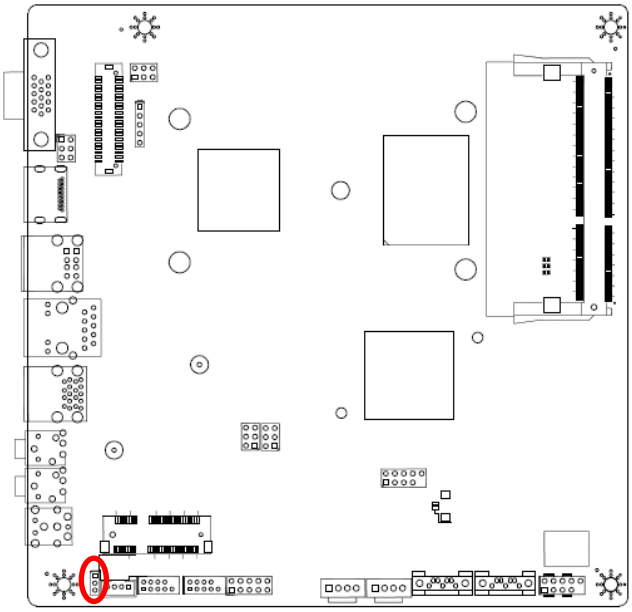
2.4.9 USB Connector 1 - USB2.0 (FUSB1)

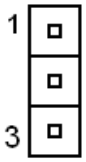




Signal	PIN	PIN	Signal
VCC	1	2	VCC
DATA-	3	4	DATA-
DATA+	5	6	DATA+
GND	7	8	GND
		10	GND

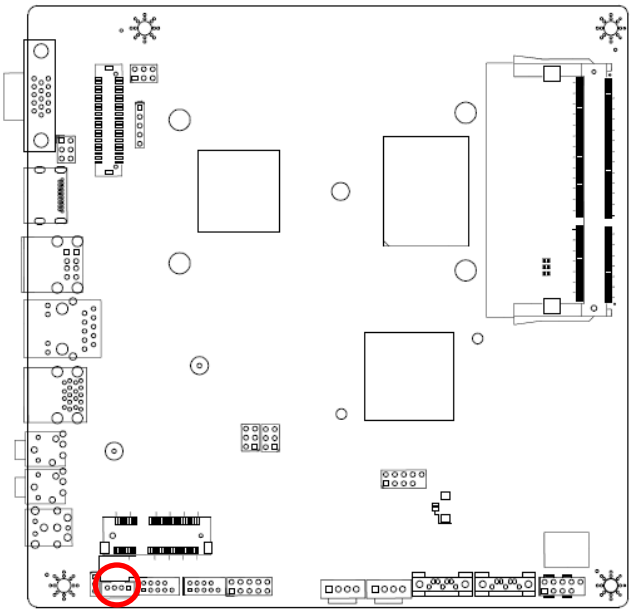
2.4.10 CIR connector (CIR)

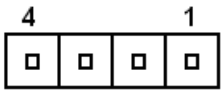




PIN	Signal
1	5VSB
2	GND
3	RX/TX

2.4.11 Speaker Headers (JSPK)

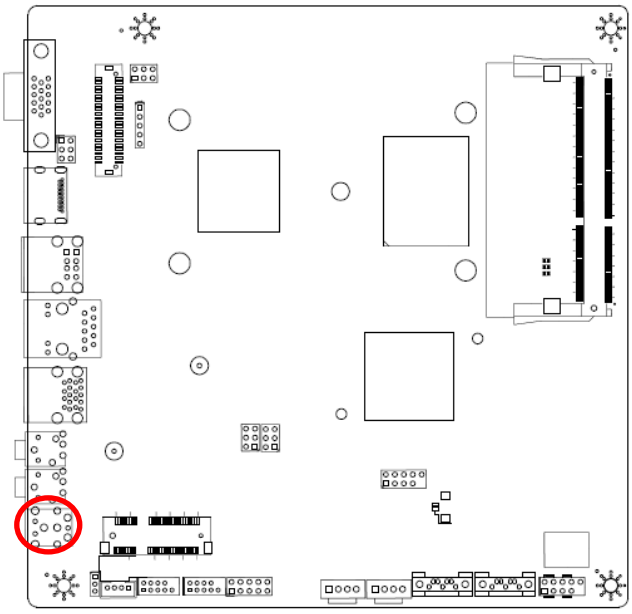


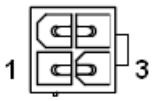


PIN	Signal
1	INTSPL+
2	INTSPL-
3	INTSPR+
4	INTSPR-

Note: Support 3W 4ΩX 2 speaker.
Mapping connector PHR-4.

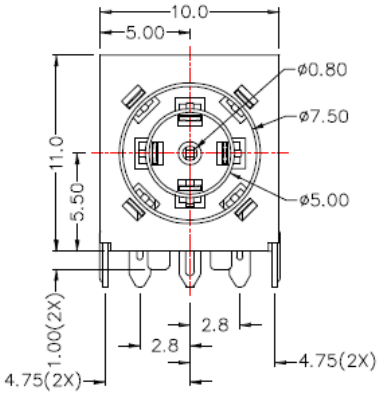
2.4.12 Power connector (J1)

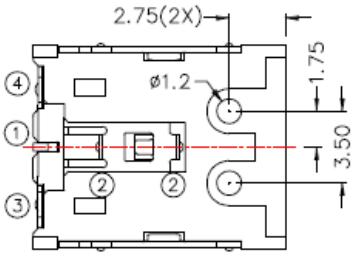




Signal	PIN	PIN	Signal
GND	2	4	+19V
GND	1	3	+19V

Note: Power input +19V only.

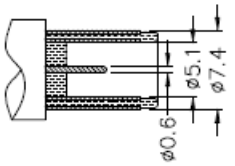


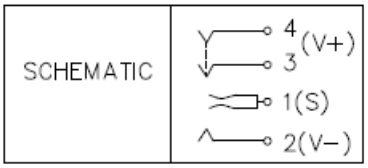


*MATERIAL

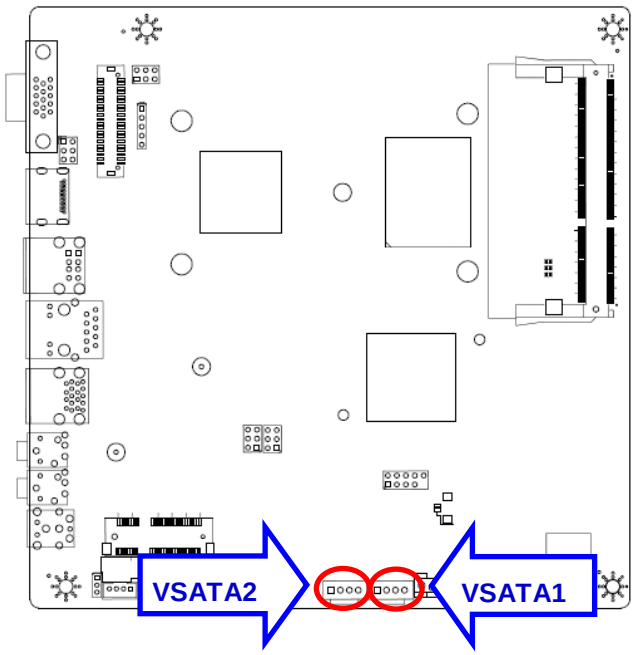
TERMINAL 1	:PHOSPHOR BRONZE
TERMINAL 2	:PHOSPHOR BRONZE
TERMINAL 3	:PHOSPHOR BRONZE
TERMINAL 4	:PHOSPHOR BRONZE
SPRING	:STAINLESS STEEL
SHIELD	:BRASS
HOUSING	:PA6T

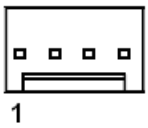
DC MATE PLUG





2.4.13 SATA Power connector 1/2 (VSATA1/2)





PIN	Signal	Max current
1	12V	1A
2	GND	
3	GND	
4	5V	1A

3.BIOS Setup

3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

The BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:
By pressing <Del> immediately after switching the system on, or
By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter setup, F11 to popup menu

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press DEL to enter setup, F11 to popup menu

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to the pervious page or Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F7 key	Previous Values
F8 key	Fail-Safe Values
F9 key	Optimized Defaults
F10 key	Save and Exit

- **Navigating Through The Menu Bar**

  Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the BIOS supports an override to the NVRAM settings which resets your system to its defaults.

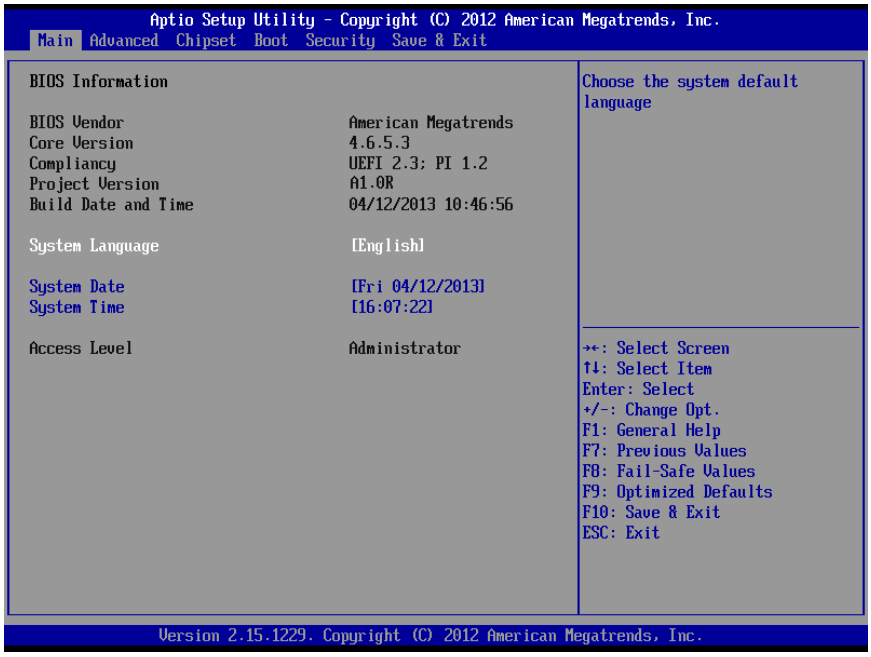
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.6 BIOS setup

Once you enter the BIOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
BIOS Information
BIOS Vendor American Megatrends
Core Version 4.6.5.3
Compliancy UEFI 2.3; PI 1.2
Project Version A1.0R
Build Date and Time 04/12/2013 10:46:56
System Language [English]
System Date [Fri 04/12/2013]
System Time [16:07:22]
Access Level Administrator
Choose the system default language
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

3.6.1.1 System Language

Use this option to select system language

3.6.1.2 System Date

Use the system date option to set the system date. Manually enter the day, month and year.

3.6.1.3 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

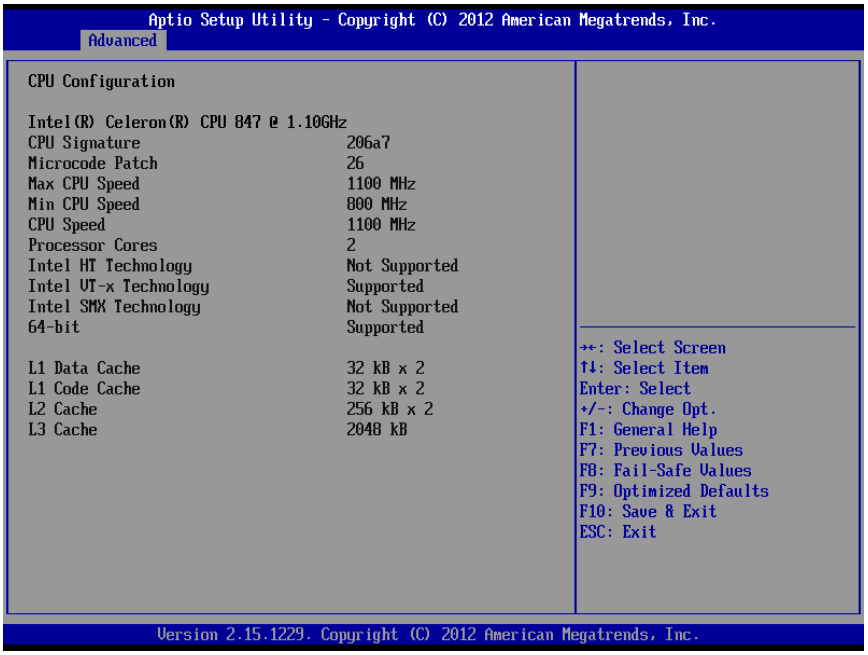
Note: BIOS setup screens shown in this chapter are for reference only, and may not exactly match what you see on your screen. Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

3.6.2 Advanced BIOS settings

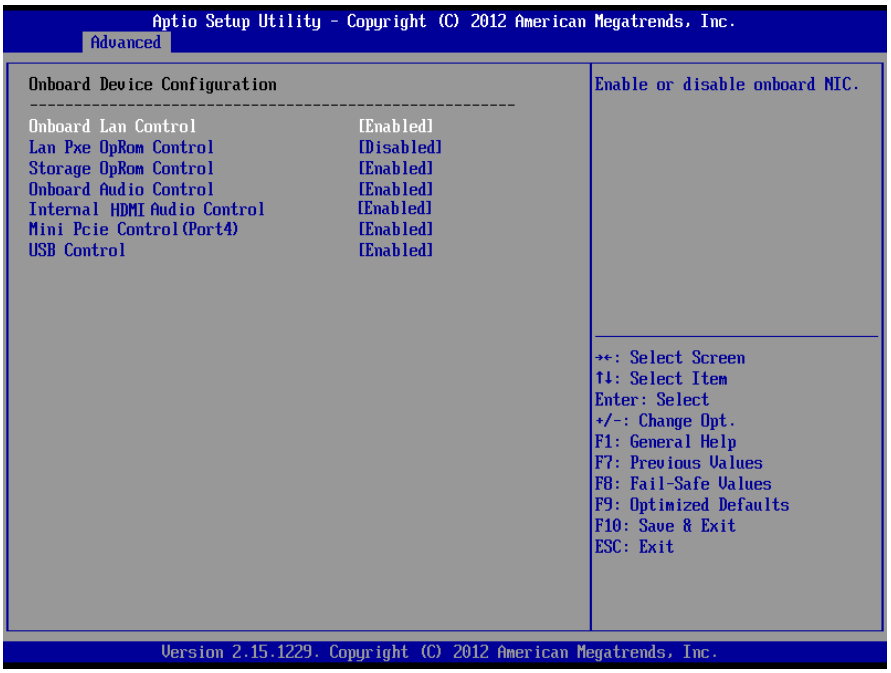
This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

3.6.2.1 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.

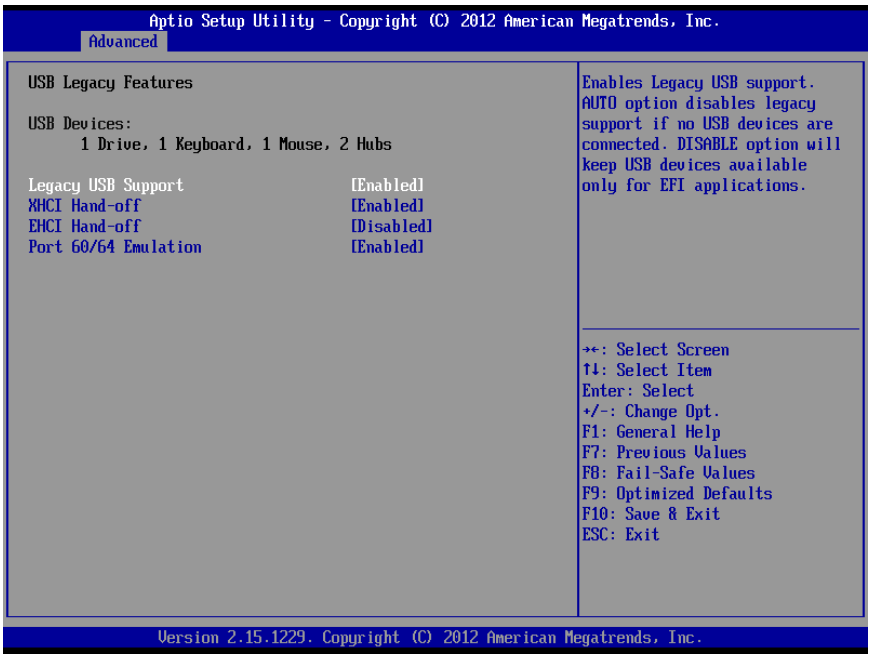

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
CPU Configuration
Intel(R) Celeron(R) CPU 847 @ 1.10GHz
CPU Signature 206a7
Microcode Patch 26
Max CPU Speed 1100 MHz
Min CPU Speed 800 MHz
CPU Speed 1100 MHz
Processor Cores 2
Intel HT Technology Not Supported
Intel VT-x Technology Supported
Intel SMX Technology Not Supported
64-bit Supported
L1 Data Cache 32 kB x 2
L1 Code Cache 32 kB x 2
L2 Cache 256 kB x 2
L3 Cache 2048 kB
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

3.6.2.2 Onboard Device Configuration



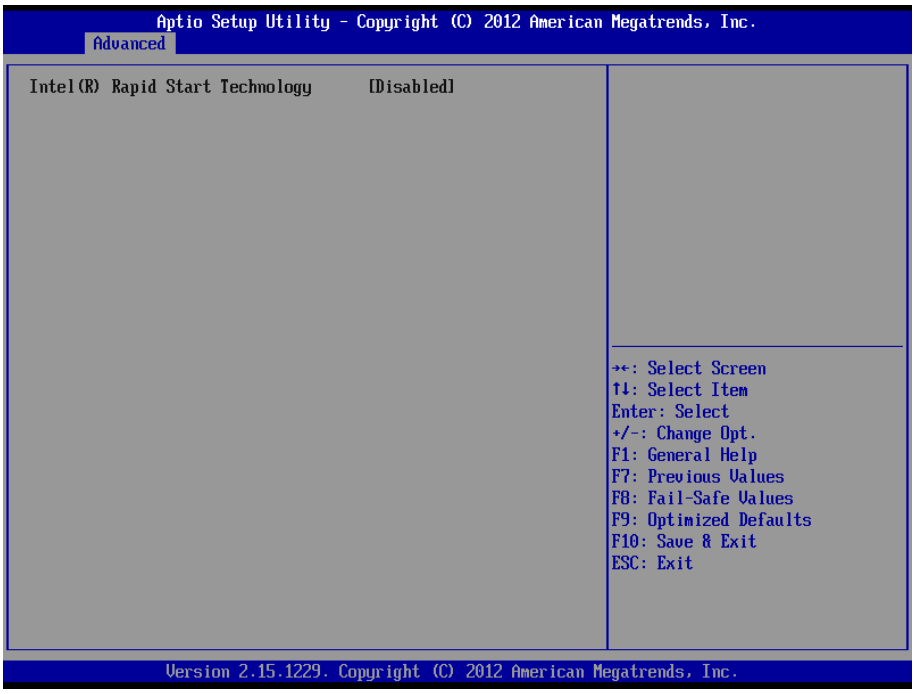
Item	Options	Description
Onboard Lan Control	Disabled Enabled**[Default]**	Enable or disable Onboard NIC.
Lan Pxe OpROM Control	Disabled**[Default]** Enabled	Controls the execution of PXE OpROM.
Storage OpROM Control	Disabled Enabled**[Default]**	Controls the execution of Storage OpROM.
Onboard Audio Control	Disabled Enabled**[Default]**	Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled Enabled = Azalia will be unconditionally enabled Auto = Azalia will be enabled if present, disabled otherwise.
Internal HDMI Audio Control	Disabled**[Default]** Enabled	Enable or disable internal HDMI codec for Azalia.
Mini Pcie Control (Port4)	Disabled Enabled**[Default]**	Enable or disable the Mini Pcie Port.
USB Control	Disabled Enabled**[Default]**	Enable or disable the USB Port.

3.6.2.3 USB Legacy Features

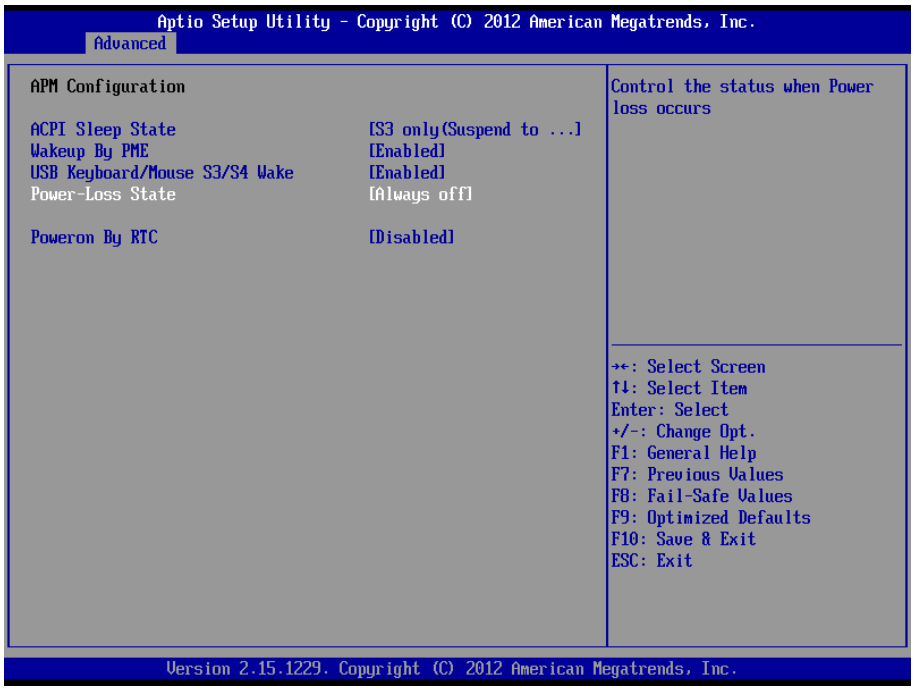

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
USB Legacy Features
USB Devices:
1 Drive, 1 Keyboard, 1 Mouse, 2 Hubs
Legacy USB Support [Enabled]
XHCI Hand-off [Enabled]
EHCI Hand-off [Disabled]
Port 60/64 Emulation [Enabled]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

Item	Options	Description
Legacy USB Support	Enabled**[Default]** Disabled Auto	Enables Legacy USB support, AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
XHCI Hand-off	Disabled Enabled**[Default]**	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
EHCI Hand-off	Disabled**[Default]** Enabled	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
Port 60/64 Emulation	Disabled Enabled**[Default]**	Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

3.6.2.4 Inter® Rapid Start Technology



3.6.2.5 Advanced Power Management

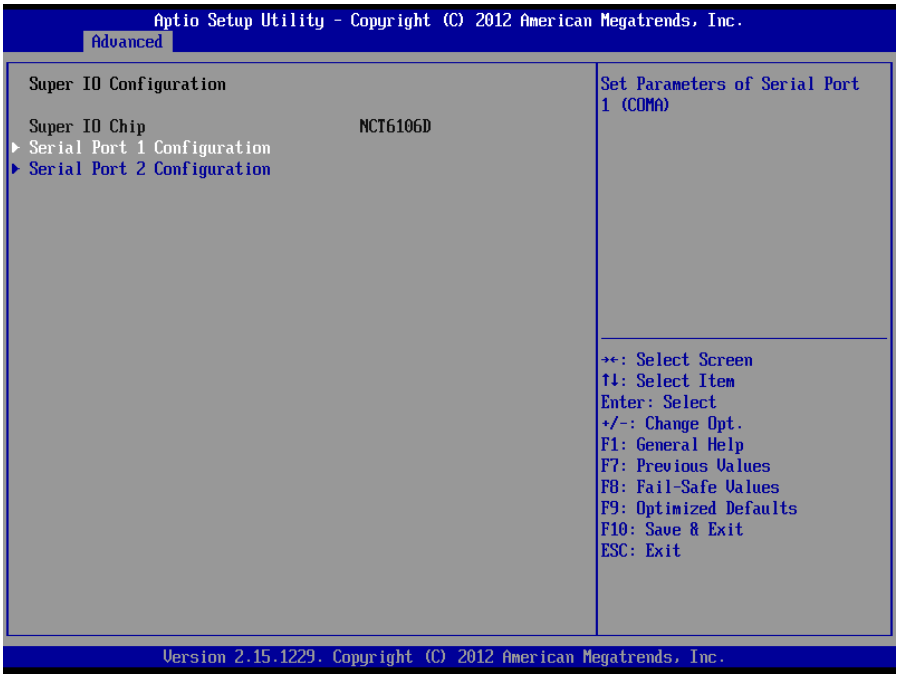

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
Advanced
APM Configuration
ACPI Sleep State [S3 only(Suspend to ...]
Wakeup By PME [Enabled]
USB Keyboard/Mouse S3/S4 Wake [Enabled]
Power-Loss State [Always off]
Poweron By RTC [Disabled]
Control the status when Power loss occurs
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

Item	Options	Description
ACPI Sleep State	Suspend Disabled	Select ACPI sleep state the system will enter

	S1 only(CPU Stop Clock) S3 only(Suspend to RAM) **[Default]** Auto	when the SUSPEND button is pressed.
Wake By PME	Disabled Enabled**[Default]**	Wakeup By PME.
USB Keyboard/Mouse S3/S4 Wake	Disabled Enabled**[Default]**	Enabled/Disabled Wakeup From S3/S4 By USB KB/MS.
Power-Loss State	Always off**[Default]** Always on Keep last state	Control the status when Power loss occurs.
Poweron By RTC	Disabled**[Default]** Enabled	Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified.

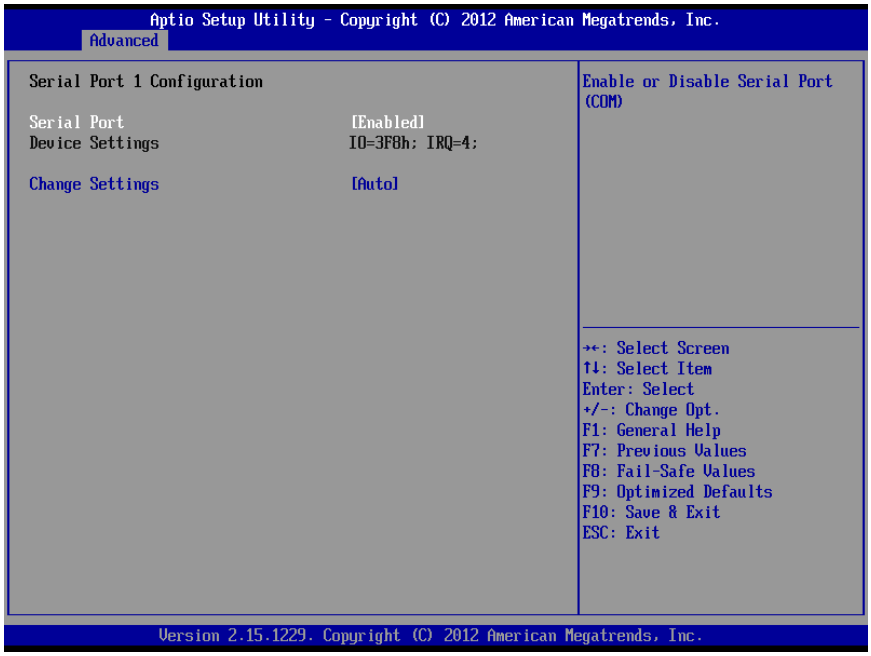
3.6.2.6 Super IO Configuration

You can use this item to set up or change the Super IO configuration for FDD controllers, parallel ports and serial ports.



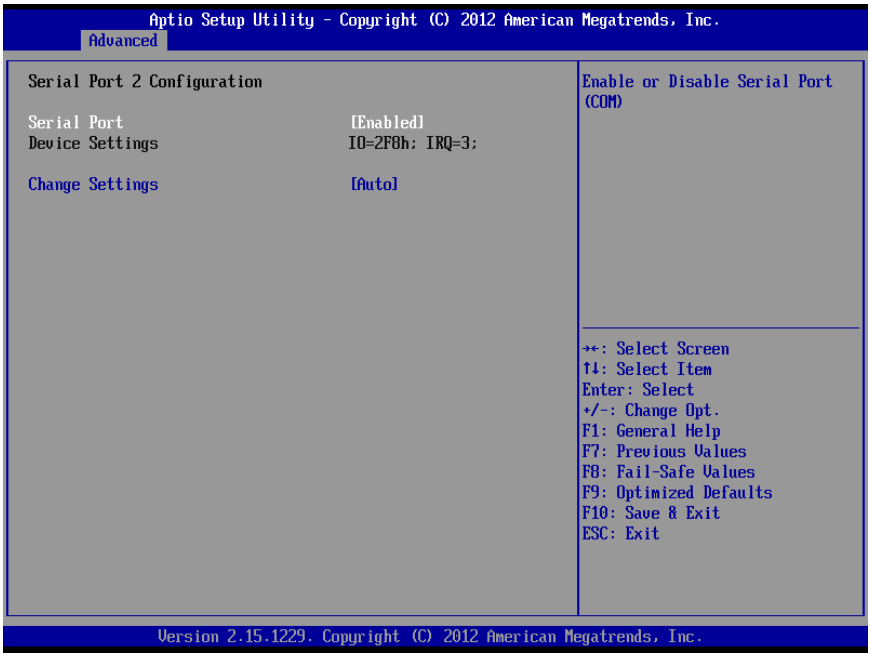
Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).

3.6.2.6.1 Serial Port 1 Configuration



Item	Option	Description
Serial Port	Disabled Enabled**[Default]**	Enable or Disable Serial Port (COM).
Change Settings	Auto**[Default]** IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,4,5,6,7,,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

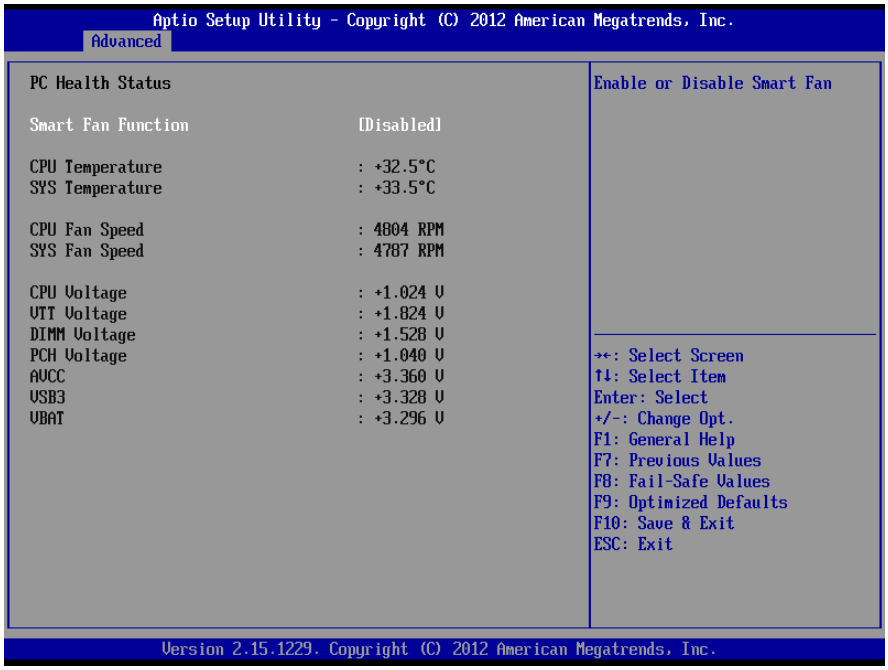
3.6.2.6.2 Serial Port 2 Configuration



Item	Option	Description
Serial Port	Disabled Enabled**[Default]**	Enable or Disable Serial Port (COM).
Change Settings	Auto**[Default]** IO=2F8h; IRQ=3; IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

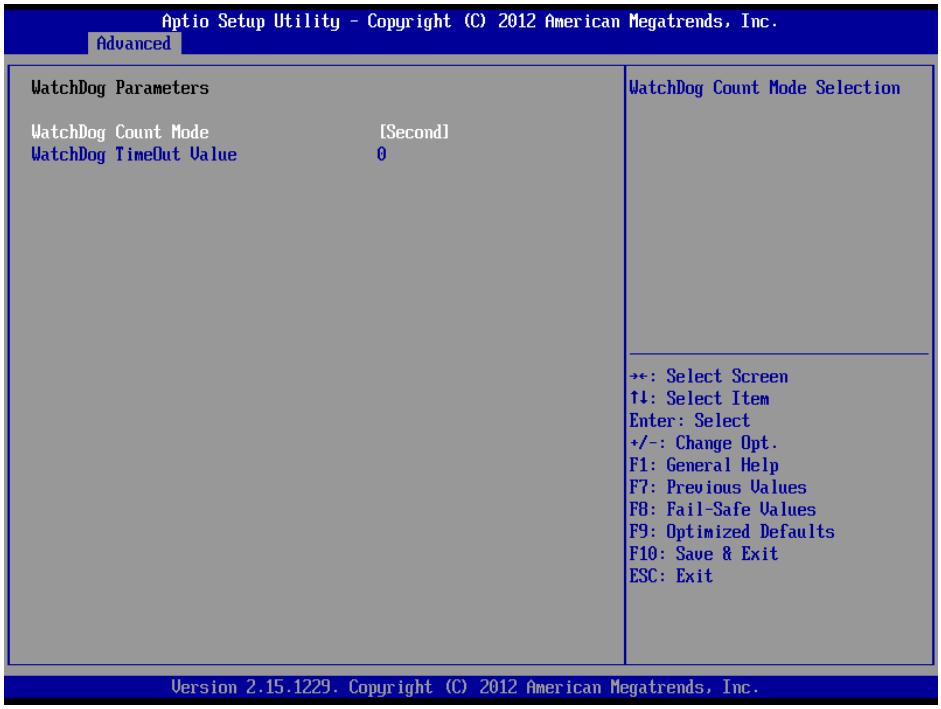
3.6.2.7 HW Monitor

The H/W Monitor shows the operating temperature, fan speeds and system voltages.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
PC Health Status
Smart Fan Function [Disabled]
CPU Temperature : +32.5°C
SYS Temperature : +33.5°C
CPU Fan Speed : 4804 RPM
SYS Fan Speed : 4787 RPM
CPU Voltage : +1.024 V
VTT Voltage : +1.824 V
DIMM Voltage : +1.528 V
PCH Voltage : +1.040 V
AVCC : +3.360 V
VSB3 : +3.328 V
VBAT : +3.296 V
Enable or Disable Smart Fan
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

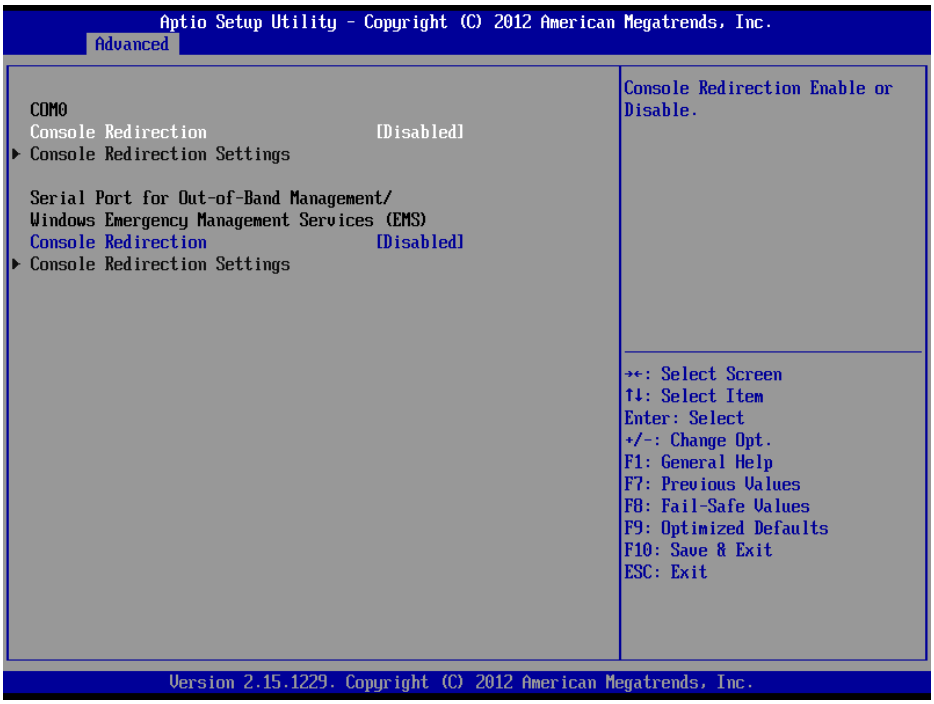
Item	Description
Smart Fan Function	Enable or Disable Smart Fan.

3.6.2.8 Watchdog Configuration



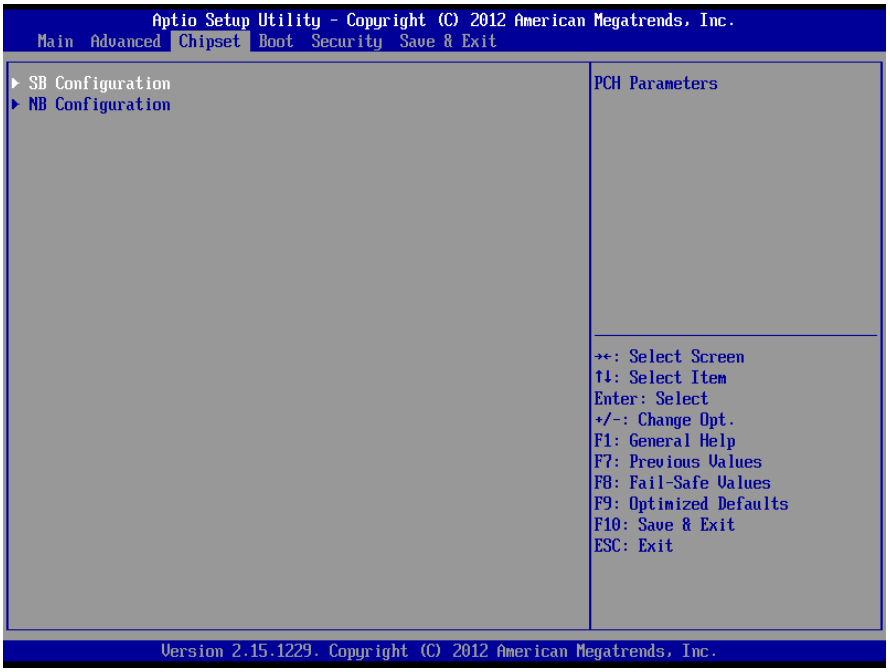
Item	Options	Description
Watchdog Count Mode	Second**[Default]** Minute	WatchDog Count Mode Selection.
Watchdog TimeOut Value	0**[Default]**	Fill WatchDog TimeOut Value, 0 means disabled.

3.6.2.9 Serial Port Console Redirection



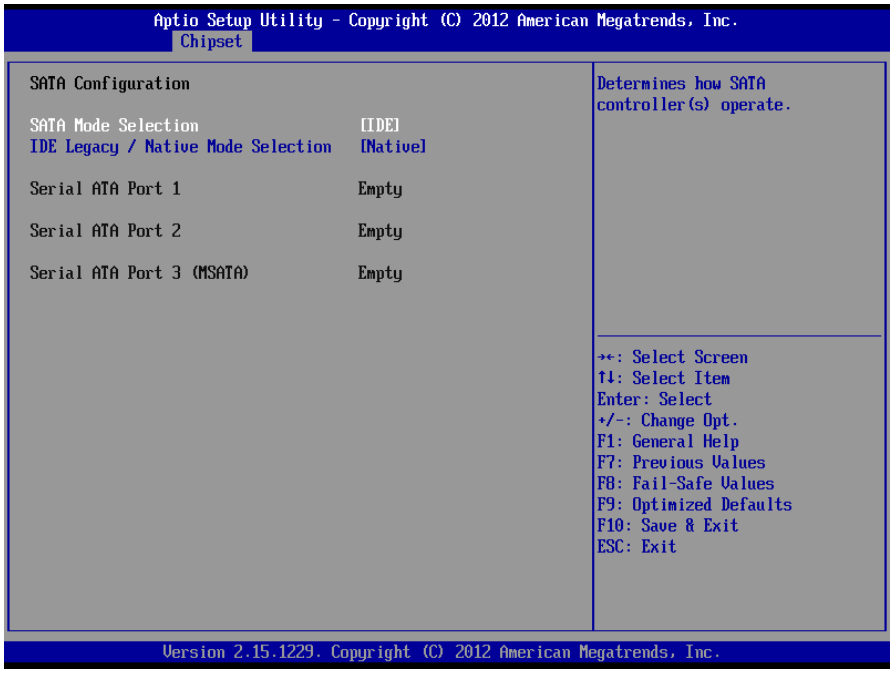
Item	Options	Description
Console Redirection	Disabled**[Default]** Enabled	Console Redirection Enable or Disable.

3.6.3 Chipset



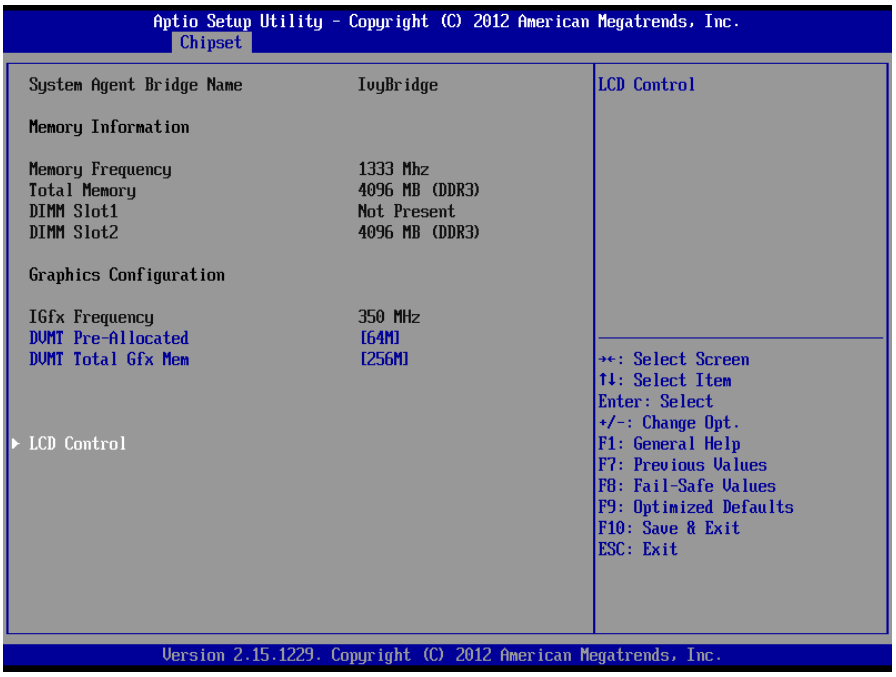
Item	Description
SB Configuration	PCH Parameters.
NB Configuration	North Bridge Parameters.

3.6.3.1 SB Configuration


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Chipset
SATA Configuration
SATA Mode Selection [IDE]
IDE Legacy / Native Mode Selection [Native]
Serial ATA Port 1 Empty
Serial ATA Port 2 Empty
Serial ATA Port 3 (MSATA) Empty
Determines how SATA controller(s) operate.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

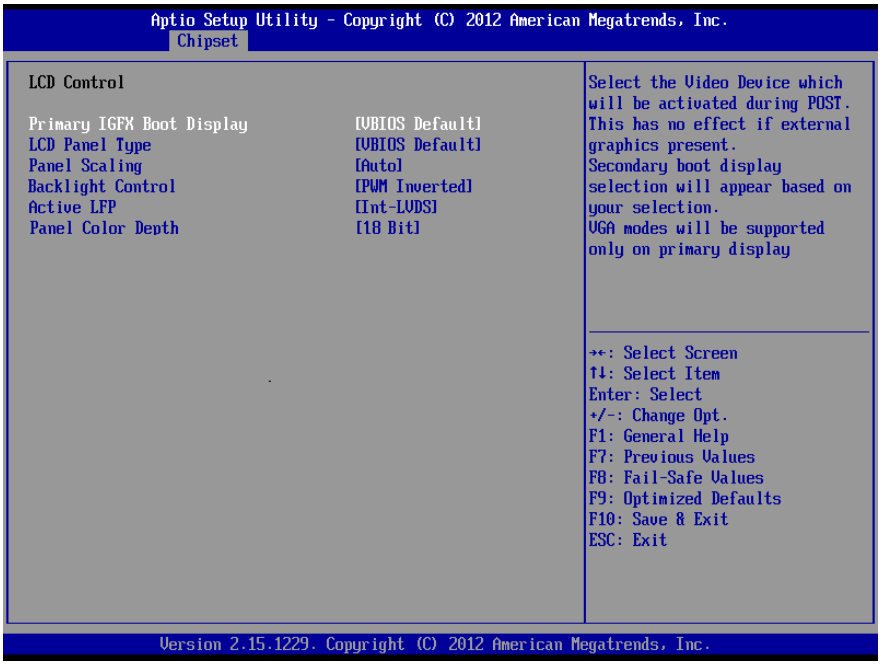
Item	Options	Description
SATA Mode Selection	IDE**[Default]** AHCI RAID	Determines how SATA controller(s) operate.
IDE Legacy / Native Mode Selection	Native**[Default]** Legacy	IDE Legacy / Native Mode Selection.

3.6.3.2 NB Configuration



Item	Options	Description
DVMT Pre-Allocated	32M/64M**[Default]**/96M/128M/160M/192M/224M/256M/288M/320M/352M/384M/416M/448M/480M/512M/1024M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
DVMT Total Gfx Mem	128M/256M**[Default]**/MAX	Select DVMT 5.0 Total Graphics Memory size used by the Internal Graphics Device.
LCD Control	LCD Control.	

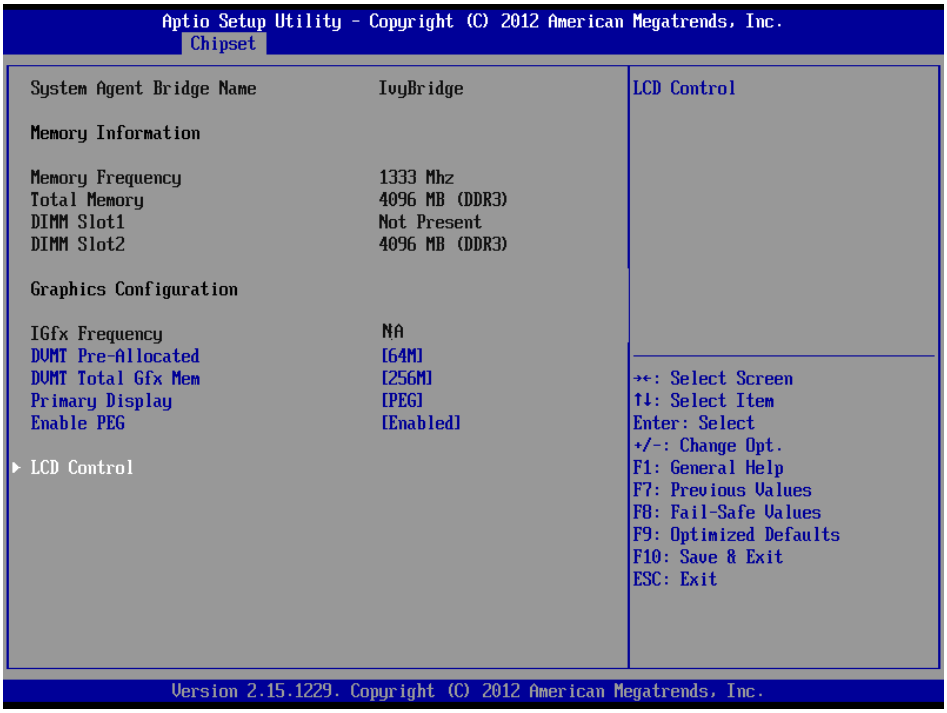
3.6.3.2.1 LCD Control


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Chipset
LCD Control
Primary IGFX Boot Display [VBIOS Default]
LCD Panel Type [VBIOS Default]
Panel Scaling [Auto]
Backlight Control [PWM Inverted]
Active LFP [Int-LVDS]
Panel Color Depth [18 Bit]
Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

Item	Options	Description
Primary IGFX Boot Display	VBIOS Default**[Default]** CRT EFP LFP	Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.
LCD Panel Type	VBIOS Default**[Default]** 640x480 18/1 800x600 18/1 1024x768 18/1 1280x1024 24/2 1024x600 18/1 800x480 18/1 1600x1200 24/2 1366x768 24/1 1680x1050 24/2 1920x1200 24/2 1440x900 24/2 1600x900 24/2 1024x768 24/1 1280x800 18/1 1920x1080 24/2 2048x1536 24/2	Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.
Panel Scaling	Auto**[Default]** Off Force Scaling	Select the LCD panel scaling option used by the Internal Graphics Device.
Backlight Control	PWM Inverted**[Default]** PWM Normal	Back Light Control Setting.

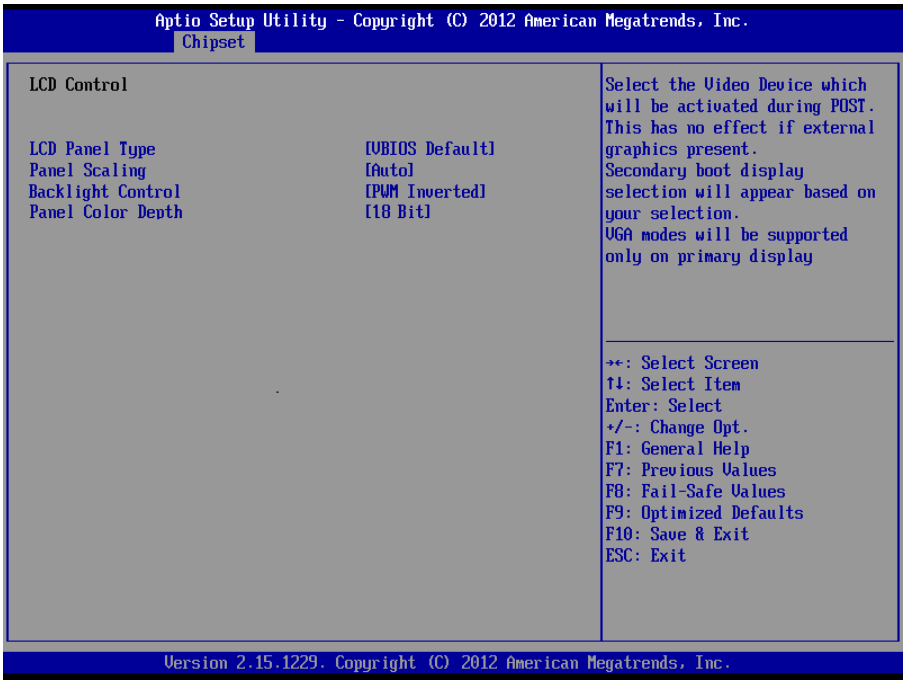
Active LFP	No LVDS Int-LVDS**[Default]** (For EMX-NM70-GPU)	Select the Active LFP Configuration. No LVDS:VBIOS does not enable LVDS. Int-LVDS:VBIOS enables LVDS drive by Integrated encoder. SDVO LVDS: VBIOS enables LVDS driver by SDVO encoder. eDP Port-A: LFP Driven by Int-Display Port encoder from Port-A. eDP Port-D: LFP Driven by Int-DisplayPort encoder from Port-D (through PCH).
	No LVDS**[Default]** Int-LVDS (For EMX-NM70)	
Panel Color Depth	18 Bit**[Default]** 24 Bit	Select the LFP Panel Color Depth.

3.6.3.3 NB Configuration-GPU



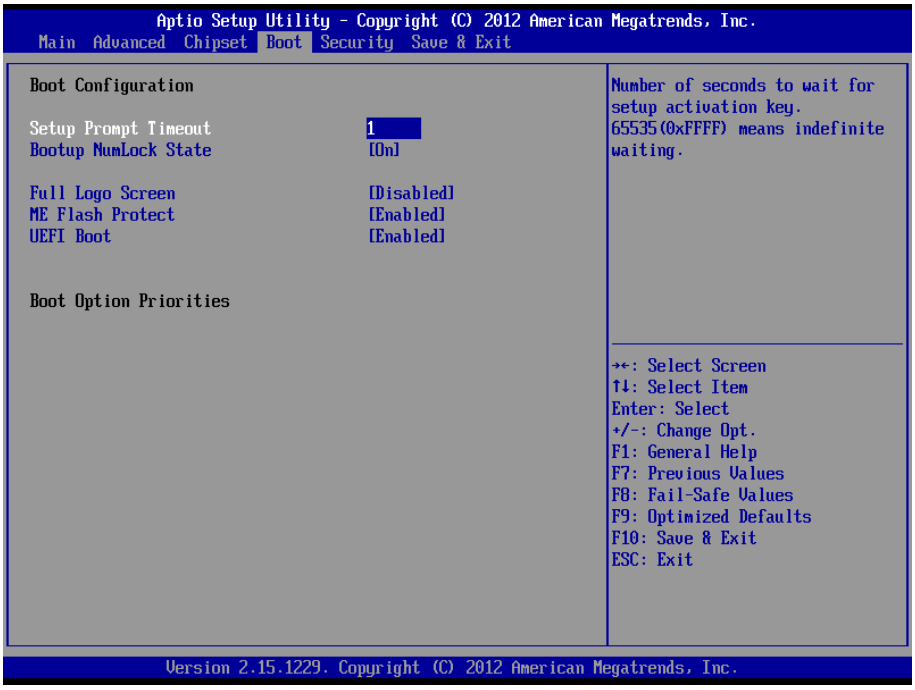
Item	Options	Description
DVMT Pre-Allocated	32M/64M**[Default]**/96M/128M/160M/192M/224M/256M/288M/320M/352M/384M/416M/448M/480M/512M/1024M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
DVMT Total Gfx Mem	128M/256M**[Default]**/MAX	Select DVMT 5.0 Total Graphics Memory size used by the Internal Graphics Device.
Primary Display	Auto IGFX PEG**[Default]**	Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx.
Enable PEG	Disabled Enabled**[Default]** Auto	To enable or disable the PEG.
LCD Control	LCD Control.	

3.6.3.3.1 LCD Control-GPU


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Chipset
LCD Control
LCD Panel Type [VBIOS Default]
Panel Scaling [Auto]
Backlight Control [PWM Inverted]
Panel Color Depth [18 Bit]
Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

Item	Options	Description
LCD Panel Type	VBIOS Default**[Default]** 640x480 18/1 800x600 18/1 1024x768 18/1 1280x1024 24/2 1024x600 18/1 800x480 18/1 1600x1200 24/2 1366x768 24/1 1680x1050 24/2 1920x1200 24/2 1440x900 24/2 1600x900 24/2 1024x768 24/1 1280x800 18/1 1920x1080 24/2 2048x1536 24/2	Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.
Panel Scaling	Auto**[Default]** Off Force Scaling	Select the LCD panel scaling option used by the Internal Graphics Device.
Backlight Control	PWM Inverted**[Default]** PWM Normal	Back Light Control Setting.
Panel Color Depth	18 Bit**[Default]** 24 Bit	Select the LFP Panel Color Depth.

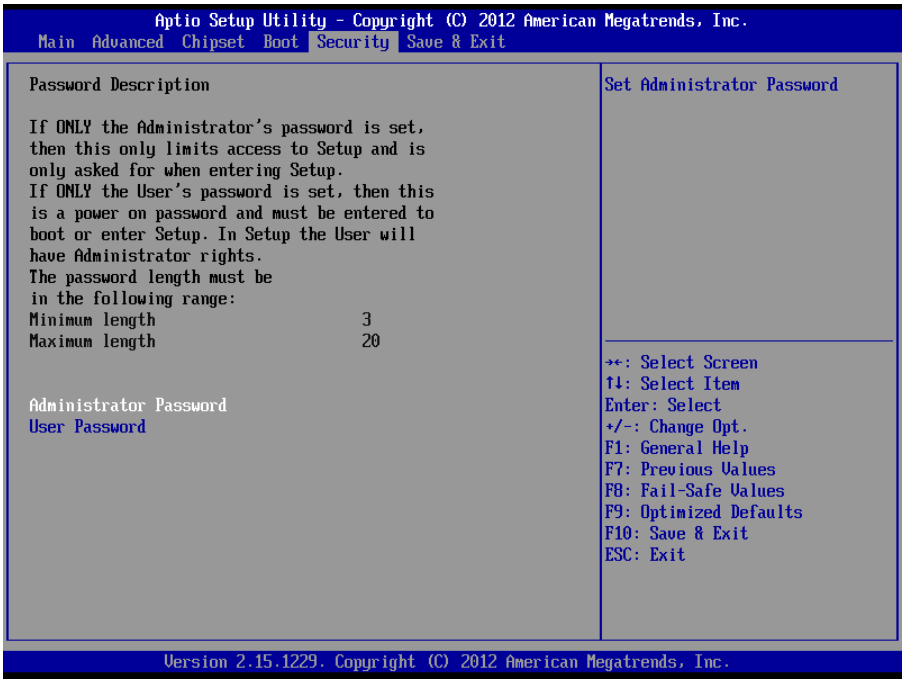
3.6.4 Boot settings



Item	Option	Description
Setup Prompt Timeout	1~65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On**[Default]** Off	Select the keyboard NumLock state.
Full Logo Screen	Disabled**[Default]** Enabled	Enables or disables Full Logo Screen.
ME Flash Protect	Disabled Enabled**[Default]**	Disabled it for update ME region.
UEFI Boot	Auto**[Default]** Enabled Disabled	Auto: If the 1st boot HDD is GPT then enable UEFI boot options, otherwise disable. Enabled: Enable all UEFI boot options. Disabled all UEFI boot options.

3.6.5 Security

Use the Security menu to set system and user password.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length 3
Maximum length 20
Administrator Password
User Password
Set Administrator Password
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

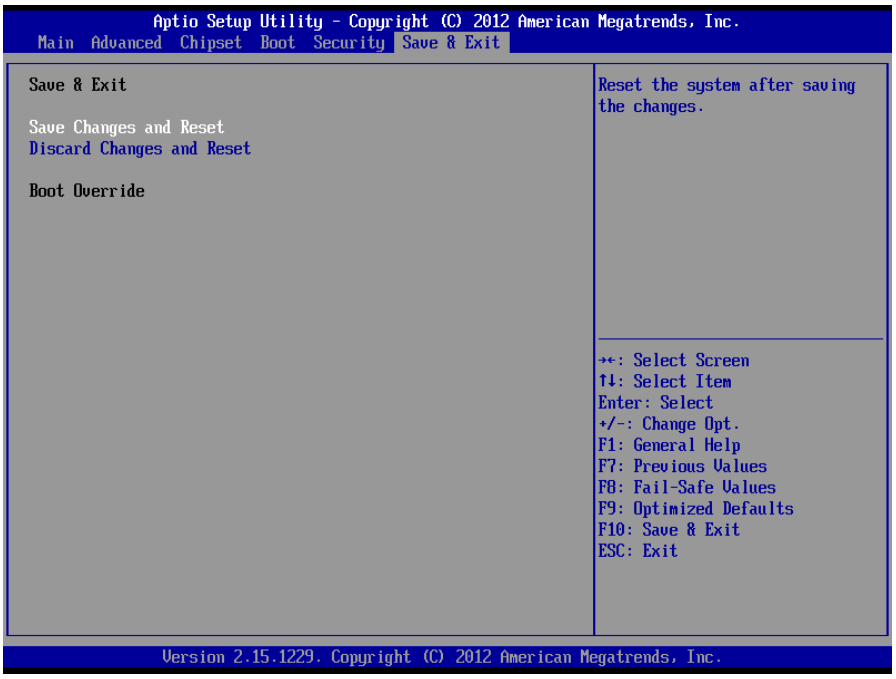
3.6.5.1 Administrator Password

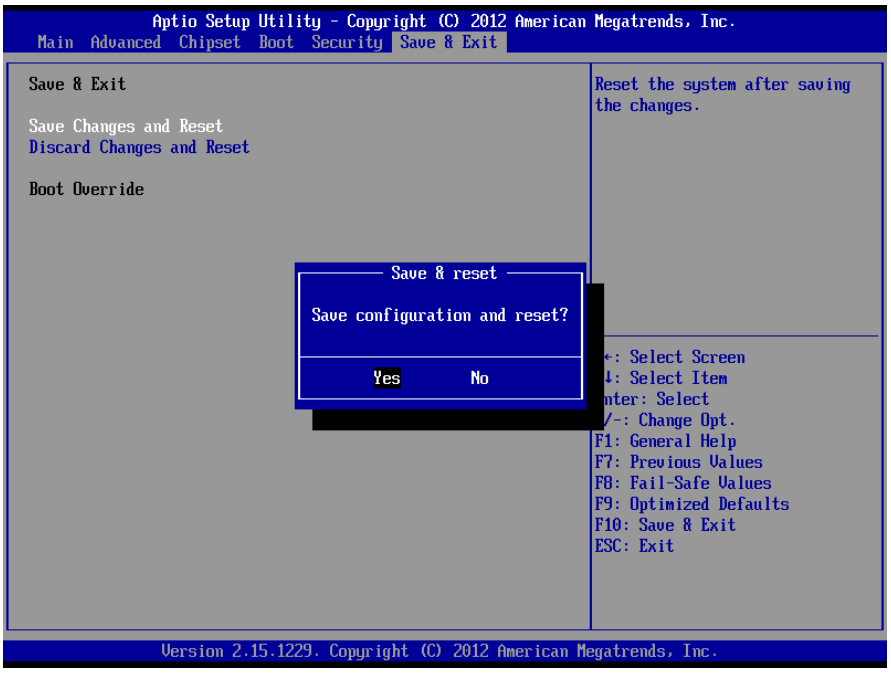
This setting specifies a password that must be entered to access the BIOS Setup Utility. If only the Administrator's password is set, then this only limits access to the BIOS setup program and is only asked for when entering the BIOS setup program. By default, no password is specified.

3.6.5.2 User Password

This setting specifies a password that must be entered to access the BIOS Setup Utility or to boot the system. If only the User's password is set, then this is a power on password and must be entered to boot or enter the BIOS setup program. In the BIOS setup program, the User will have Administrator rights. By default, no password is specified.

3.6.6 Save & Exit


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Save & Exit
Save Changes and Reset
Discard Changes and Reset
Boot Override
Reset the system after saving the changes.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Save & Exit
Save Changes and Reset
Discard Changes and Reset
Boot Override
Reset the system after saving the changes.
Save & reset
Save configuration and reset?
Yes
No
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

3.6.6.1 Save Changes and Reset

Any changes made to BIOS settings are stored in NVRAM. The setup program then exits and reboots the controller.

3.6.6.2 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.7 The setup step of setting Triple display on EMX-NM70-GPU

BIOS Settings:

1. Before change BIOS setting to enable LVDS, please to connect CRT/HDMI monitor for show your screen and connect LVDS panel.

2. BIOS→ chipset→ NB Configuration→ Primary Display→ IGFX.

3. BIOS→ chipset→ NB Configuration→ LCD Control→ Please to set your LCD Panel Type & Panel color Depth.

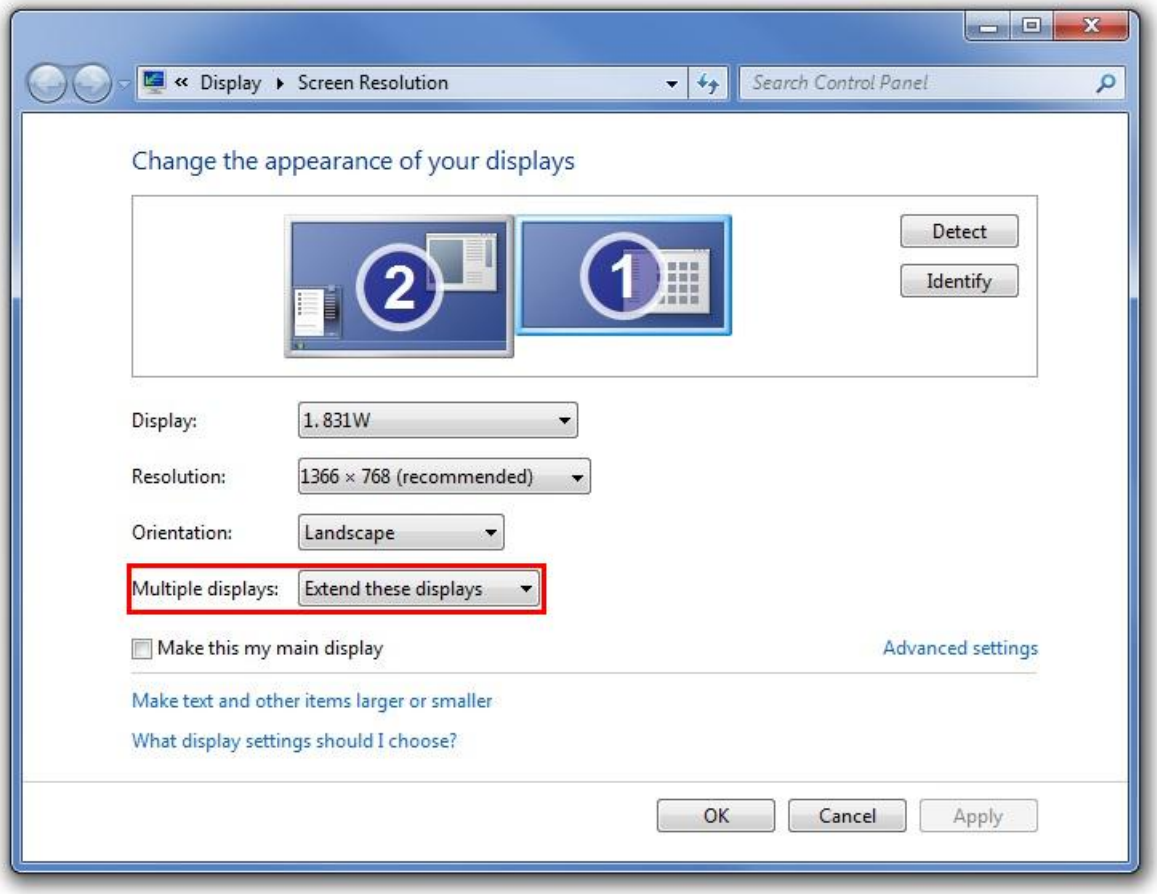
4. Save Changes and Reset.

Windows Settings:

5. After into Windows, the screen will be show on LVDS panel. **(CRT/HDMI are no screen)**.

6. Install Intel HD Graphics Media Driver and control tool on Windows.

7. To set Multiple displays on Control Panel→ Customize Desktop→ Display→ Screen Resolution→ Select you monitor and select "Extend" or" Clone" .



The limitation of three display function under Windows

EMX-NM70-GPU at Windows Setup Step.

To choice different kind of Graphic on BIOS	PEG→CRT, HDMI: nVidia Graphic. IGFX→LVDS: Intel Chipset
VBIOS Default	Boot Display: VBIOS Default→CRT+HDMI LCD Panel Type: Default is 1024x768 18/1 BIOS/DOS: IGFX+PEG→LVDS only , PEG→CRT only
Multiple Display for nVidai Graphic	Windows: PEG→CRT+HDMI Clone/Extend: By Display tool of Windows 7 or nVidia tool.
Multiple Display for Intel HD Graphic with nVidia Graphic	Windows: IGFX+PEG→ LVDS + HDMI and CRT 1. Default value is LVDS only. 2. Monitor 1 is LVDS, monitor 2 is HDMI, monitor 3 is CRT. 3. Use Display tool of Windows 7 to modify Multi-Display. 4. Extend for Triple Display: LVDS/HDMI/CRT 5. Clone for Dual Display: Only HDMI and CRT. LVDS is extend.

4. Drivers Installation

Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

4.1 Install Chipset Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, click on "start" icon and it should show the index page of Avalue's products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

Note: The installation procedures and screen shots in this section are based on Windows 7 operating system.

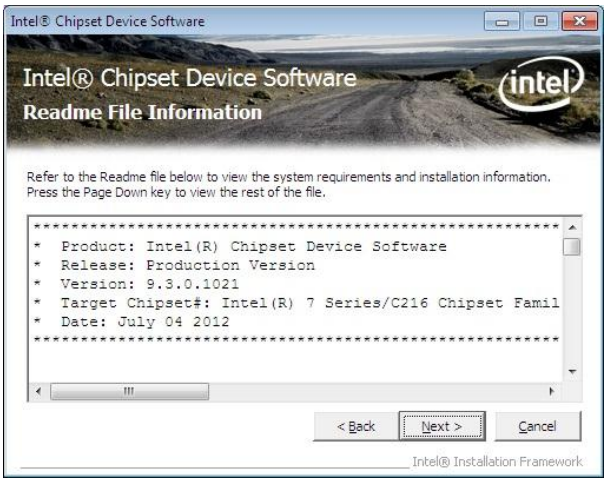
Step 1. Locate 「\Driver_Chipset\Intel\EMX-NM70_Chipset」.

Intel® Chipset Device Software
Intel® Chipset Device Software
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Step 2. Select **Next** to start setup.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Step 3. Select **Yes** to the next step.


Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 9.3.0.1021
* Target Chipset#: Intel(R) 7 Series/C216 Chipset Famil
* Date: July 04 2012
< Back
Next >
Cancel
Intel® Installation Framework

Step 4. Select **Next** to continue installation.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
Version: 9.3.0.1011
Installing Driver: Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
Version: 9.3.0.1011
Installing Driver: Xeon E3-1200/2nd Generation Intel(R) Core(TM) Processor Family PCI Expre
Version: 9.2.0.1026
Installing Driver: 2nd Generation Intel(R) Core(TM) Processor Family DRAM Controller - 0104
Version: 9.2.0.1026
Click Next to continue.
Next
Intel® Installation Framework

Step 5. Select **Next** to continue installation.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

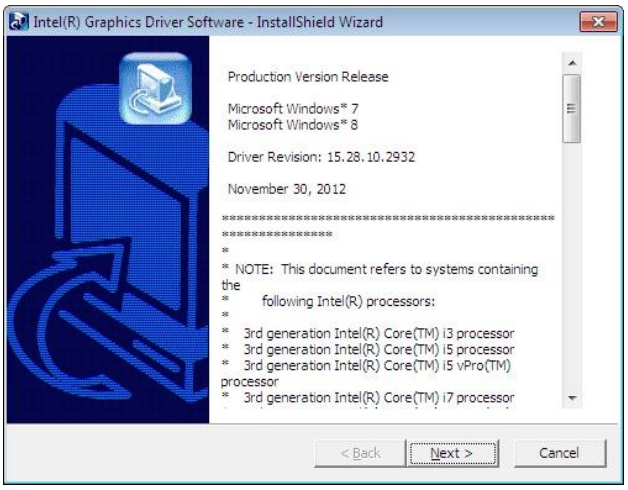
Step 6. Select **Finish** to complete Installation.

4.2 Install VGA Driver

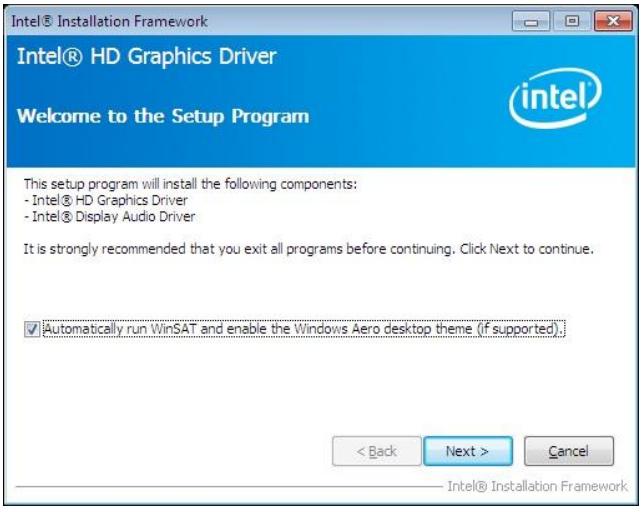
Insert the Supporting DVD-ROM to DVD-ROM drive, click on "start" icon and it should show the index page of Avalue's products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

Note: The installation procedures and screen shots in this section are based on Windows 7 operating system.

Step 1. Locate 「\VGA\EMX-NM70_VGA\Intel Graphics」.


Intel(R) Graphics Driver Software - InstallShield Wizard
Production Version Release
Microsoft Windows* 7
Microsoft Windows* 8
Driver Revision: 15.28.10.2932
November 30, 2012
* NOTE: This document refers to systems containing the
following Intel(R) processors:
* 3rd generation Intel(R) Core(TM) i3 processor
* 3rd generation Intel(R) Core(TM) i5 processor
* 3rd generation Intel(R) Core(TM) i5 vPro(TM) processor
* 3rd generation Intel(R) Core(TM) i7 processor
< Back
Next >
Cancel

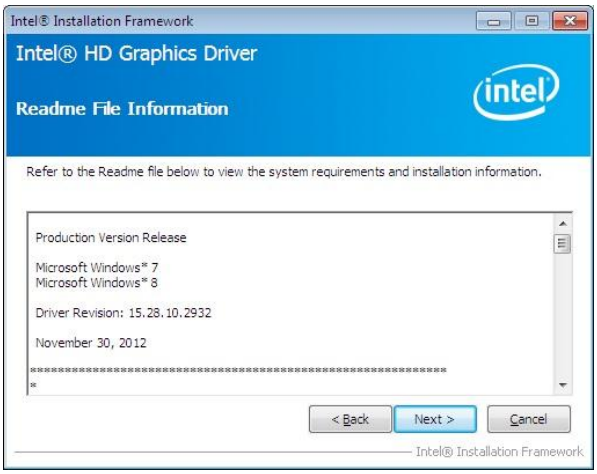
Step 2. Select **Next** to start setup.


Intel® Installation Framework
Intel® HD Graphics Driver
Welcome to the Setup Program
This setup program will install the following components:
- Intel® HD Graphics Driver
- Intel® Display Audio Driver
It is strongly recommended that you exit all programs before continuing. Click Next to continue.
Automatically run WinSAT and enable the Windows Aero desktop theme (if supported).
< Back
Next >
Cancel
Intel® Installation Framework

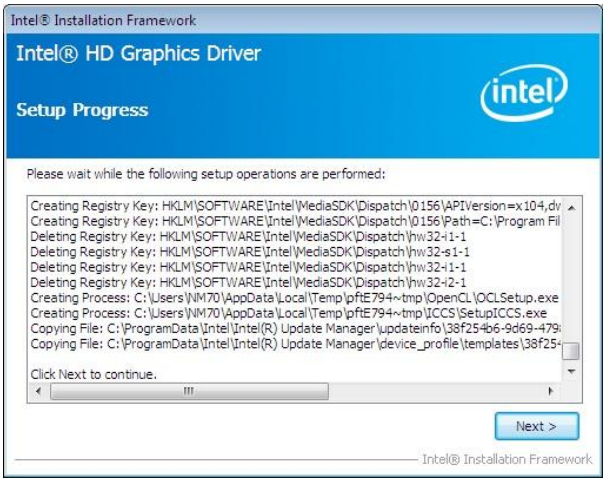
Step 3. Select **Next** to the next step.

Intel® Installation Framework
Intel® HD Graphics Driver
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
* If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT,
< Back
Yes
No
Intel® Installation Framework

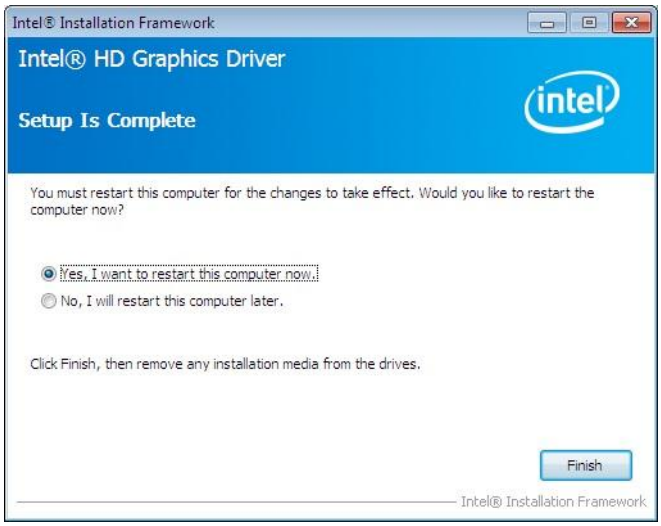
Step 4. Select **YES** to continue installation.



Step 5. Select **Next** to continue installation.


Intel® Installation Framework
Intel® HD Graphics Driver
Setup Progress
Please wait while the following setup operations are performed:
Creating Registry Key: HKLM\SOFTWARE\Intel\MediaSDK\Dispatch\0156\APIVersion=x104,dv
Creating Registry Key: HKLM\SOFTWARE\Intel\MediaSDK\Dispatch\0156\Path=C:\Program Fil
Deleting Registry Key: HKLM\SOFTWARE\Intel\MediaSDK\Dispatch\hw32-i1-1
Deleting Registry Key: HKLM\SOFTWARE\Intel\MediaSDK\Dispatch\hw32-s1-1
Deleting Registry Key: HKLM\SOFTWARE\Intel\MediaSDK\Dispatch\hw32-i1-1
Deleting Registry Key: HKLM\SOFTWARE\Intel\MediaSDK\Dispatch\hw32-i2-1
Creating Process: C:\Users\NM70\AppData\Local\Temp\pftE794~tmp\OpenCL\OCLSetup.exe
Creating Process: C:\Users\NM70\AppData\Local\Temp\pftE794~tmp\ICCS\SetupICCS.exe
Copying File: C:\ProgramData\Intel\Intel(R) Update Manager\updateinfo\38f254b6-9d69-479
Copying File: C:\ProgramData\Intel\Intel(R) Update Manager\device_profile\templates\38f25
Click Next to continue.
Next >
Intel® Installation Framework

Step 6. Select **Next** to continue installation.

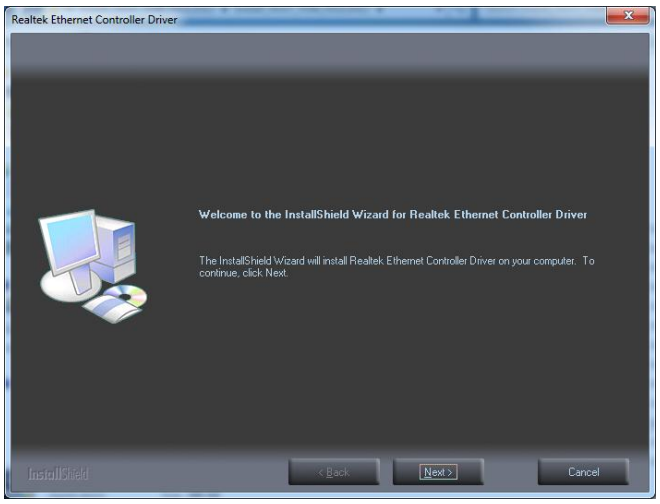

Intel® Installation Framework
Intel® HD Graphics Driver
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

Step 7. Select **Finish** to complete Installation.

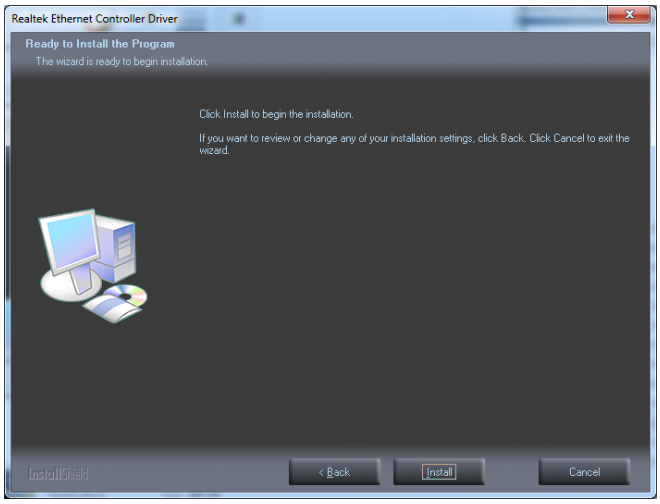
4.3 Install LAN Driver (For Realtek 8111E Gigabit Ethernet)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Driver_Gigabit\Realtek\RTL8111E\EMX-NM70_LAN.

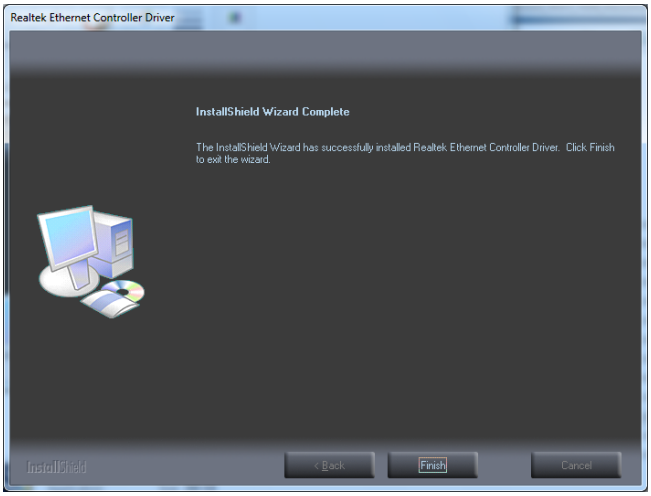
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system.


Realtek Ethernet Controller Driver
Welcome to the InstallShield Wizard for Realtek Ethernet Controller Driver
The InstallShield Wizard will install Realtek Ethernet Controller Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step 1. Click **Next** to Install.


Realtek Ethernet Controller Driver
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Step 2. Click **Install** to begin the installation.


Realtek Ethernet Controller Driver
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek Ethernet Controller Driver. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

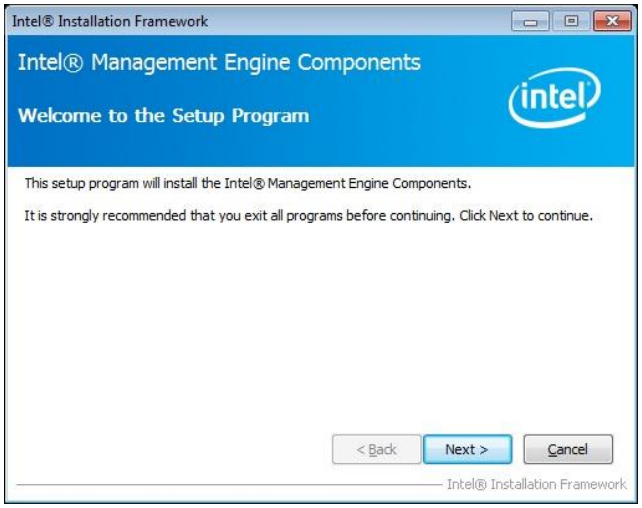
Step 3. Click **Finish** to complete setup.

4.4 Install ME Driver

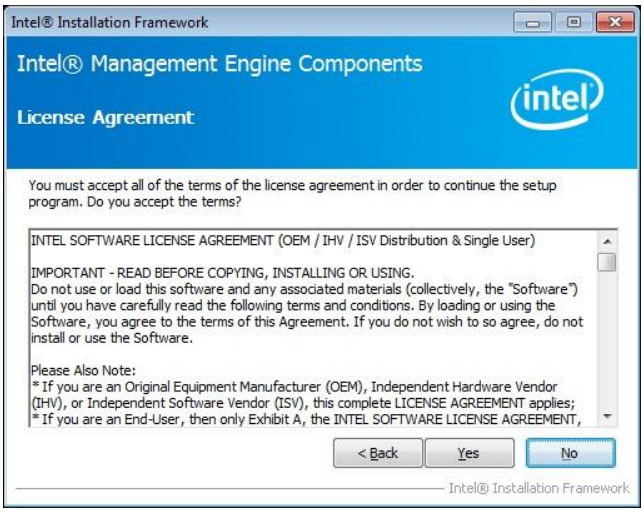
Insert the Supporting DVD-ROM to DVD-ROM drive, click on "start" icon and it should show the index page of Avalue's products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

Note: The installation procedures and screen shots in this section are based on Windows 7 operating system.

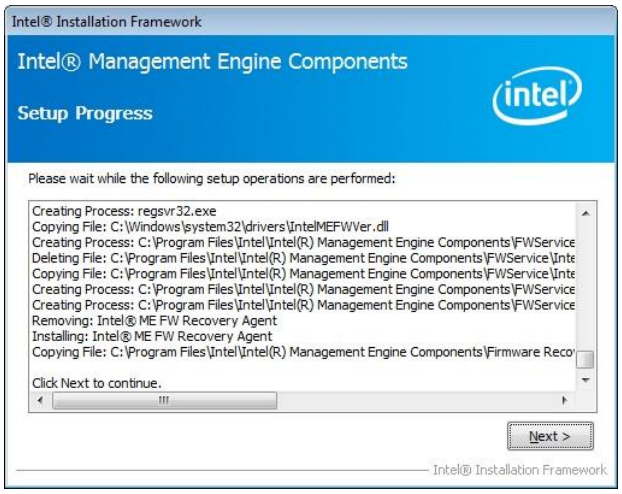
Step 1. Locate 「\Utility\EMX-NM70_ME」.


Intel® Installation Framework
Intel® Management Engine Components
Welcome to the Setup Program
This setup program will install the Intel® Management Engine Components.
It is strongly recommended that you exit all programs before continuing. Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

Step 2. Select **Next** to start setup.


Intel® Installation Framework
Intel® Management Engine Components
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
* If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT,
< Back
Yes
No
Intel® Installation Framework

Step 3. Select **Yes** to the next step.


Intel® Installation Framework
Intel® Management Engine Components
Setup Progress
Please wait while the following setup operations are performed:
Creating Process: regsvr32.exe
Copying File: C:\Windows\system32\drivers\IntelMEFWVer.dll
Creating Process: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService
Deleting File: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService\Inte
Copying File: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService\Inte
Creating Process: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService
Creating Process: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService
Removing: Intel® ME FW Recovery Agent
Installing: Intel® ME FW Recovery Agent
Copying File: C:\Program Files\Intel\Intel(R) Management Engine Components\Firmware Reco
Click Next to continue.
Next >
Intel® Installation Framework

Step 4. Select **Next** to continue installation.

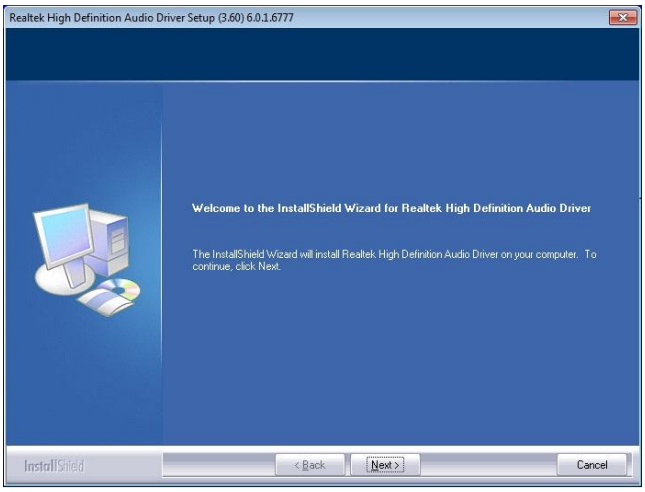
Intel® Installation Framework
Intel® Management Engine Components
Setup Is Complete
The setup program successfully installed the following components:
- Intel® Management Engine Interface
- Intel® Dynamic Application Loader
- Intel® Identity Protection Technology (Intel® IPT)
- Local Management Service
- User Notification Service
Click Finish to complete the setup process.
Finish
Intel® Installation Framework

Step 5. Select **Finish** to complete installation

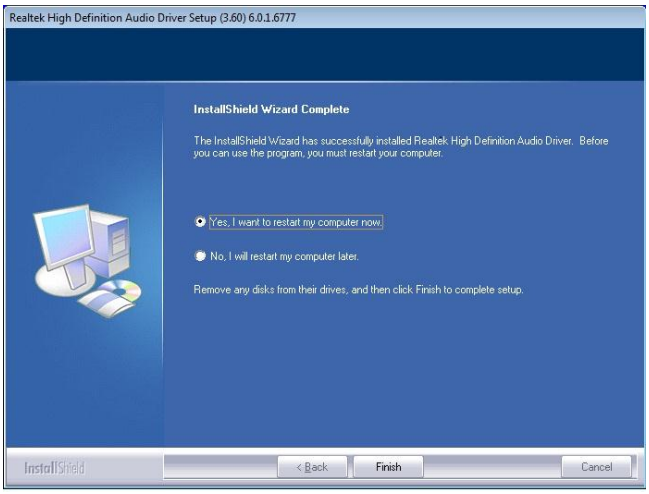
4.5 Install Audio Driver (For Realtek ALC661 HD Audio)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Driver_Audio\EMX-NM70_Audio.

Note: The installation procedures and screen shots in this section are based on Windows 7 operation system. If the warning message appears while the installation process, click Continue to go on.


Realtek High Definition Audio Driver Setup (3.60) 6.0.1.6777
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step1. Click **Next** to Install..

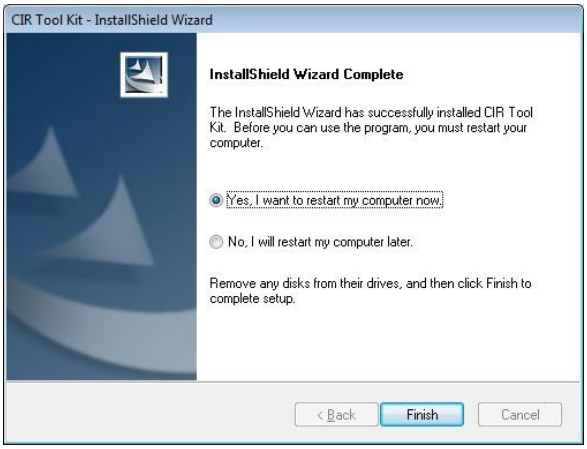

Realtek High Definition Audio Driver Setup (3.60) 6.0.1.6777
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Step 2. Select **Finish** to complete Installation.

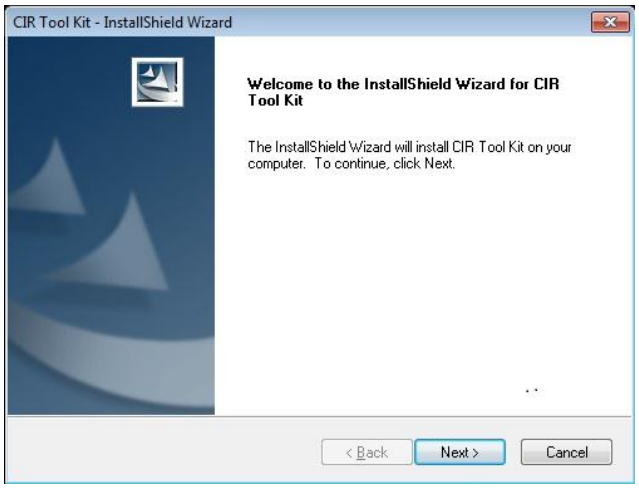
4.6 Install CIR Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Utility\EMX-NM70_CIR.

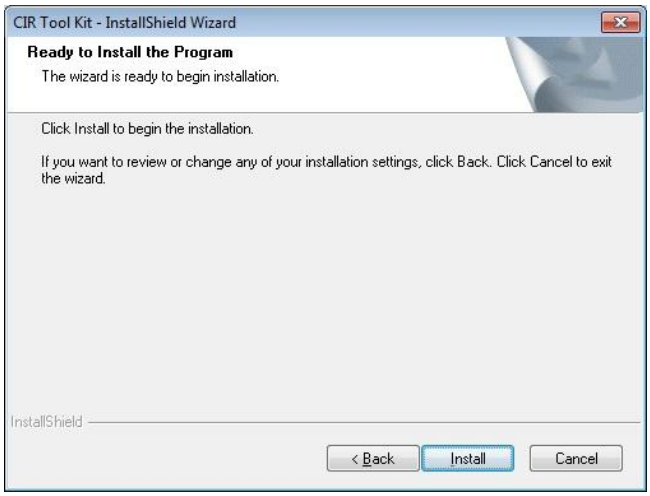
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system.


CIR Tool Kit - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed CIR Tool Kit. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

Step 3. Click **Finish** to complete setup.


CIR Tool Kit - InstallShield Wizard
Welcome to the InstallShield Wizard for CIR Tool Kit
The InstallShield Wizard will install CIR Tool Kit on your computer. To continue, click Next.
< Back
Next >
Cancel

Step 1. Click **Next** to Install.


CIR Tool Kit - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Step 2. Click **Install** to begin the installation.

4.7 Install VGA Driver for EMX-NM70-GPU Board only

Insert the Supporting DVD-ROM to DVD-ROM drive, click on "start" icon and it should show the index page of Avalue's products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

Note: The installation procedures and screen shots in this section are based on Windows 7 operating system.

Step 1. Locate 「\VGA\EMX-NM70_VGA\NVIDA (for GPU)」.

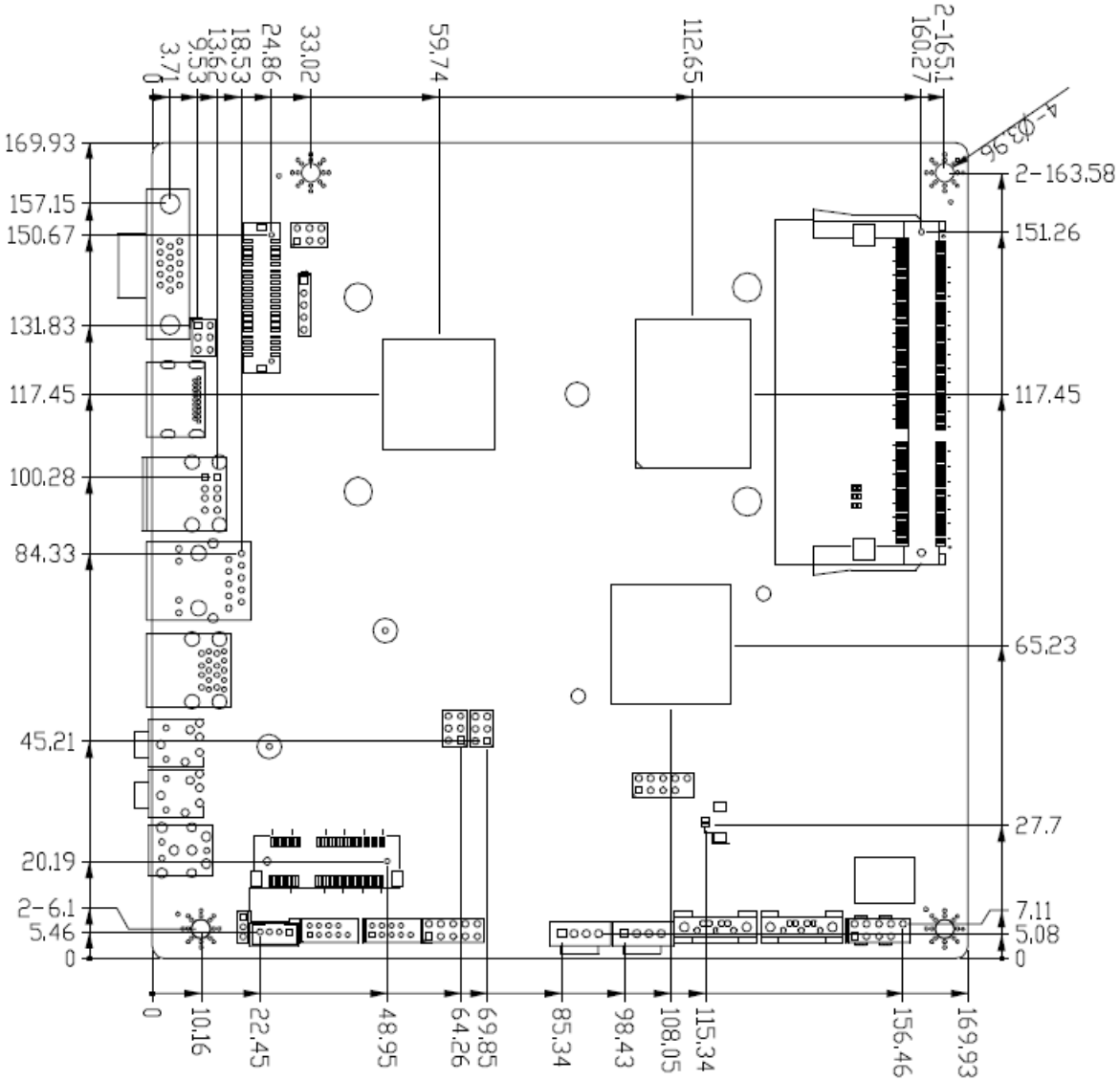
NVIDIA Installer
NVIDIA Graphics Driver
Version 306.97
NVIDIA
System Check
License Agreement
Options
Install
Finish
NVIDIA software license agreement
Please read the following NVIDIA software license agreement carefully.
License For Customer Use of NVIDIA Software
IMPORTANT NOTICE -- READ CAREFULLY: This License For Customer Use of NVIDIA Software ("LICENSE") is the agreement which governs use of the software of NVIDIA Corporation and its subsidiaries ("NVIDIA") downloadable herefrom, including computer software and associated printed materials ("SOFTWARE"). By downloading, installing, copying, or otherwise using the SOFTWARE, you agree to be bound by the terms of this LICENSE. If you do not agree to the terms of this LICENSE, do not download the SOFTWARE.
Click agree and continue if you accept the terms of the agreement.
AGREE AND CONTINUE
CANCEL

Step 2. Select **AGREE AND CONTINUE** to start setup.

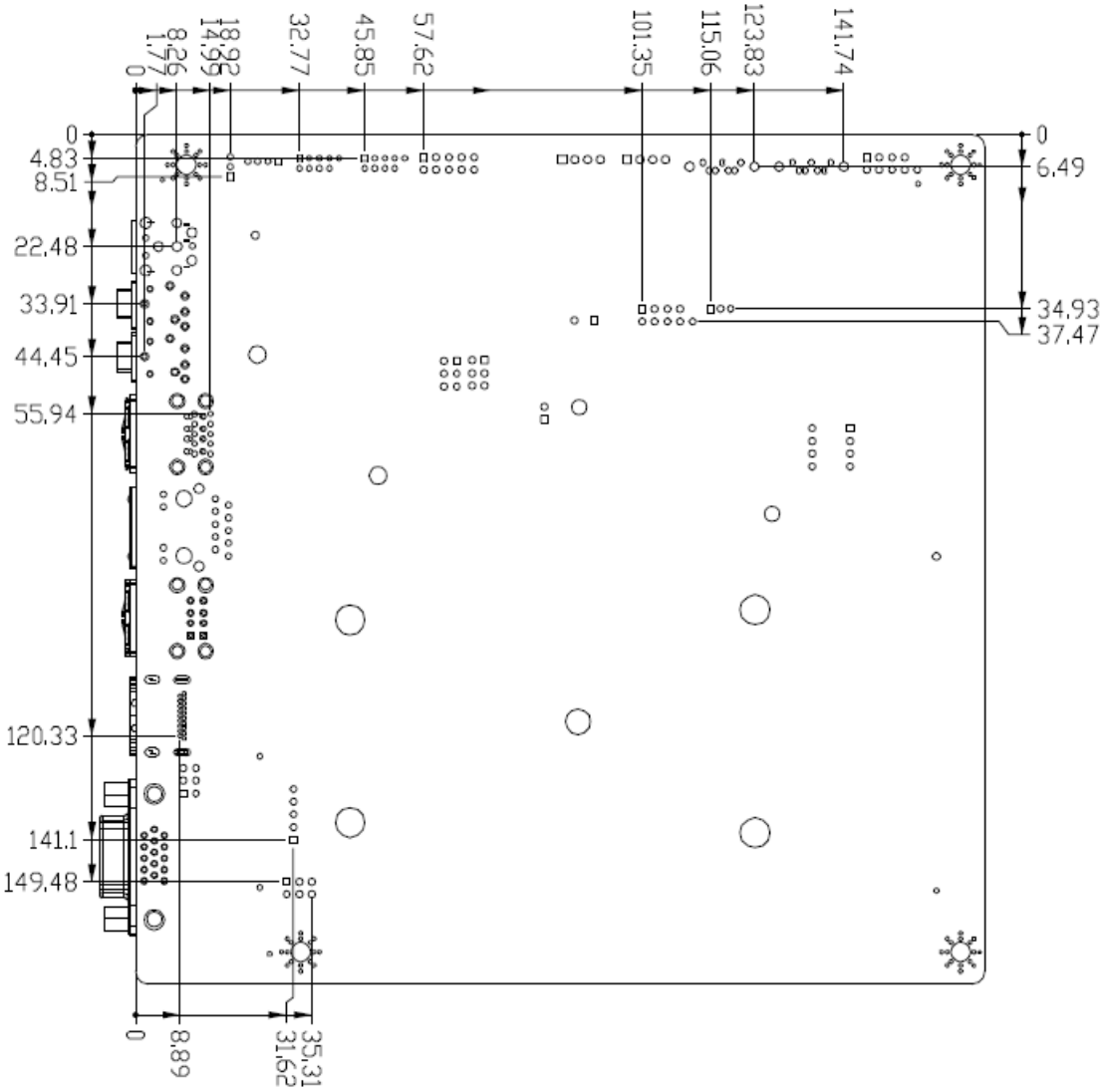
Step 3. Select **Next** to Install.

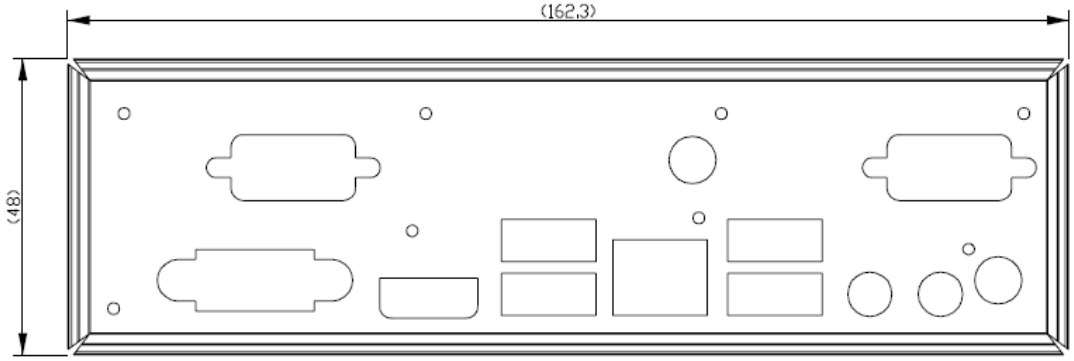
Step 4. Installed.

5. Mechanical Drawing


0
3.71
9.53
13.62
18.53
24.86
33.02
59.74
112.65
2-165.1
160.27
4-Ø3.96
2-163.58
151.26
117.45
65.23
27.7
7.11
5.08
0
169.93
157.15
150.67
131.83
117.45
100.28
84.33
45.21
20.19
2-6.1
5.46
0
0
10.16
22.45
48.95
64.26
69.85
85.34
98.43
108.05
115.34
156.46
169.93

Unit: mm


0
1.77
8.26
14.99
18.92
32.77
45.85
57.62
101.35
115.06
123.83
141.74
0
4.83
8.51
22.48
33.91
44.45
55.94
120.33
141.1
149.48
0
6.49
34.93
37.47
0
8.89
31.62
35.31


(162.3)
(48)

Unit: mm